

THESIS FOR THE DEGREE OF LICENTIATE OF PHILOSOPY

**Combining customized offerings
– extended products and the role of business partners**

STEFAN KARLSSON

Division of Industrial Marketing
Department of Technology Management and Economics
Chalmers University of Technology
Göteborg, Sweden 2012

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ISSN 1654-9732 Licentiate Thesis

Report number L2012:057

Division of Industrial Marketing

Department of Technology Management and Economics

Chalmers University of Technology

SE-412 96 Göteborg, Sweden

Chalmers Reproservice

Göteborg, Sweden 2012

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Stefan Karlsson

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Chalmers University of Technology

Abstract

This thesis deals with the increasing attention of manufacturing firms to supply extended offerings, implying a shift from selling products towards provision of solutions. The overall aim is to describe and analyze how suppliers broaden their offerings by supplementing the core product with service elements. The fulfillment of this aim requires first and foremost a study coping with the identification of the elements together forming the extended offering and the principles for their combining. Secondly, the need for adjustments to the demands of individual customers calls for an analysis of the role of the buyer in this process. Thirdly, the broadening of the offering makes the provider of the solution dependent on specialized service suppliers. These conditions necessitate an exploration of how the supplier network of the provider is activated.

The frame of reference takes its point of departure in previous studies of the combining of products and services into total solutions. In this study a particular interest is directed to the roles of customers and suppliers in these processes, thus putting an emphasis on the impact of the relationships with business partners. The nature of the research issues makes a case study approach the most relevant methodological choice. The empirical enquiry deals with a provider of extended offerings in the truck industry.

The findings relates to four main areas. The first concerns the challenge to become a provider of customized solutions. The second illustrates how a customized offering is successively developed through the interaction between buyer and provider. The third relates to the role of the provider as a coordinator of the network of suppliers involved in the combining of the customized offering. Finally, the fourth area deals with some basic principles for collaboration with business partners.

Keywords: combined offerings, extended products, customization, business relationships

Preface and Acknowledgments

I have experienced an inspiring and challenging period as PhD student at Chalmers University of Technology. I have many times questioned my own ability and the likelihood of really being able to complete the thesis. Finally I am at the finishing line.

Many are those who have contributed positively to this thesis. All the valuable dialogue and feedback from my colleagues and friends at the Division of Industrial Marketing have made this possible. Their input and encouragement have been of great value for my study. Special thanks to Anna Dubois and Kajsa Hulthén, who have shared valuable feed-back on my manuscript. I am specifically grateful to my supervisor Professor Lars-Erik Gadde who always has been a strong support in both ups and downs. You have always provided me with excellent feedback and energy, especially in the later phase of the study where my own confidence temporarily was low.

I would also like to express my appreciation to the colleagues at Volvo Trucks who have supported me with time and valuable input.

Finally, I would like to thank my family, and specifically my children Ludwig, Linnéa, and Julia, who are my most valuable treasures of life.

Thank you all!

Stefan Karlsson

Göteborg, June 2012

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1 Introduction

“One of the most important business-to-business marketing trends is the move away from the sale of individual products in favor of solutions, customized bundles of goods and services.”

(Bonney and Williams, 2009:1032)

The conclusion in the quotation is shared by a large number of other researchers. Vandermerwe and Rada (1988) emphasize that many companies have begun using services as an important instrument for value creation. Increasing involvement in services has been considered a way to create innovative business opportunities. Moreover, services are regarded as a means for differentiation from competitors in mature industries. This development, which Vandermerwe and Rada (1988) identified as “*servitizing*”, has continued and also been strengthened. For example, Davies et al. (2006) concluded that an increasing number of manufacturing companies have begun to offer services in finance and maintenance in order to provide customized ‘solutions’. According to Sharma et al. (2002), more than 60 percent of the companies listed on the US stock exchange were involved in deals based on such offerings, rather than individual products and services. Among the companies that have taken these steps can be mentioned Xerox, Cummins, ABB, IBM and Nokia (Foote et al., 2001). Other studies that express the same trend concern, for example, Alstom Transport and Ericsson (Davies, et al., 2007), Honeywell and General Electric (Wise and Baumgartner, 1999), and Rolls-Royce and Pratt-Whitney (Nordin and Kowalkowski, 2010).

The transition from product sales toward services and solution offerings has several explanations. Firstly, the development of total solutions is a way to avoid the problem that many product areas have become standardized and then can be regarded as commodities (Matthyssens and Vanderbempt, 2008). One example is steel, where manufacturing companies in various ways search for differentiation. One way of achieving this is to offer “*more sophisticated products, such as high-strength steel, isotropic steel, or grades with special surface qualities*” (Woertler et al., 2002:12). However, some customers wanted more than improved grades of steel and asked for a “*host of supplementary services to go with the physical product*” (McQuiston, 2004:350). Those additional services are important when suppliers strive to differentiate their offerings from those of competitors.

Secondly, the creation of total solutions makes it possible to tailor the offering in accordance with specific customer needs. These needs concern mainly increasing demands for services of various kinds. Such services are required because companies in general have specialized and reduced their own operations. Specialization occurs because of enhanced technological complexity and diversity, which makes it difficult for firms to master all required resources and capabilities within their own organization (Oliva and Kallenberg, 2003). Specialization leads to demands for “*customization*” and away from the previously dominant standardization thinking. A shift in this direction has characterized many businesses and industries in recent decades (Pine, 1993; Lampel and Mintzberg, 1996). Strategies of this kind also tend to reduce the fierce competition that normally features markets for standardized products.

A third reason is the potential growth of revenues that might result from enlarged service commitment (Oliva and Kallenberg, 2003). The sales of new products have stagnated in many industries since demand mainly concerns replacement purchases. On the other hand, many manufacturers have improved their revenues by providing additional services to the products that already has been delivered to customers. This development has been identified as “*servicing the installed base*” (ibid., p.163), which includes all previously sold products that are still in use. Wise and Baumgartner (1999) argue that new car sales in the US market at that time were approximately 15 million automobiles annually. The total fleet of cars that were used amounted to 200 million vehicles.

At the turn of the Millennium, thus, the relation between the size of the existing car fleet and its annual growth was about 13 to 1. These numbers are not unique for the car industry but

represent the general development. This is illustrated by the fact that in the 1950s, the manufacturing industry's share of GDP accounted for 27%, while the services sector comprised 24%. In 1996 the manufacturing industry's share had decreased to 17%, while the services sector had increased to 40% (ibid.). This development led to the fact that "*prominent industrial firms such as IBM and General Electric currently derive a significant share of their revenues and profits from services, and their improved performance [...] is often attributed to a shift from a product to service focus*" (Araujo and Spring, 2006:802). At the turn of the Millennium, services accounted for 43% of IBM's total revenues (Foote et al., 2001). The extended services have provided manufacturing companies with control of the total life cycles of their offerings (Brady et al., 2005).

The literature describes situations when suppliers' hardware offerings are supplemented with services in several ways, for example as 'total', 'extended' or 'augmented' offerings. In this study the concept of an *extended offering* is applied. An extended offering consists of "*a bundle of products, services, and software*" (Nordin and Kowalkowski, 2010:441). Some writers identify these offerings as solutions to customer problems (e.g. Ford et al., 2003). Such a solution "*appears as a unique combination of numerous elements which will contribute to producing value for the customer*" (Cova and Salle, 2008:272). The first main task for the provider of these offerings is to identify the service elements to combine in order to create the offering.

Secondly, since the offering must be adapted in relation to several users, it is important that the potential buyer is involved in the process of combining the offering. The authors found in the two cases they studied that "*the supplier co-constructs a solution with the customer*" (ibid., p. 275). This conclusion is shared by Cornet et al. (2000:4) who claim that "*you cannot develop a successful solution without a customer*". Interaction with prospective users is thus vital in the augmentation of an offering.

Thirdly, extended offerings tend to be complex because they consist of both physical products and accompanying services. Companies that focus on 'core competence' may find it difficult to create total solutions solely on the basis of their own resources. Thus, "*several business partners are required to collaborate very closely towards a common goal: the delivery of the extended product*" (Jansson and Thoben, 2005:44). This means that extended offerings require an extended enterprise. Therefore it is a key task for a provider of extended offerings to

engage its own suppliers in order to develop and deliver the total solution. Cova and Salle (2008) argue for the need to mobilize and activate the network of suppliers and to work with a limited number of specialized partners. In similar vein it is claimed that the creation of *“solutions is very much a question of combining value activities of multiple actors in order to form value-creating end products”* (Windahl and Lakemond, 2006:808).

This thesis deals with the central issues discussed above. The overall aim of the study is to describe and analyze how manufacturing firms broaden their offerings by supplementing the core product with various service elements. The study is centred on the *provider* of the extended offering and involves three sub-aims:

- Identification of the elements that together form the extended offering, including the principles for the provider's combining of these elements
- Analysis of the cooperation with the buyer in the process of designing a customized offering
- Exploration of how the provider's supplier network is activated in the creation of the extended offering

The study deals with the combining of customized offerings in the truck industry. This choice is motivated by the fact that despite enhanced emphasis on services and solutions in both practice and theory *“questions remain about the applicability of findings when it comes to manufacturing firms in the capital goods industry”* (Windahl and Lakemond, 2010:1278). Therefore, the authors claim that insight into the ways in which manufacturing in the capital goods industry operates in the so-called ‘service dominated logic’ would be valuable, including *“how products and service could and should be integrated...the challenges connected to this integration...and the factors to consider when deciding on the product service mix”*. Furthermore, the servicing of the installed base represents huge business opportunities in the truck industry since the ratio between the operating fleet and new truck sales is 30 to 1 (Wise and Baumgartner, 1999).

The outline of the thesis is illustrated in Figure 1.1. Chapter 2 presents the frame of reference of the study, followed by the description of the methodological approach in Chapter 3. The elements of the offering of the supplier in the study are portrayed in Chapter 4, while its supplier network is described in Chapter 5. Chapters 6 and 7 show how the various offering elements were combined into a total solution in a specific business deal. In Chapter 8 the

connections between the combining of the offering elements and the relationships with both the customer and the suppliers are discussed. Finally, Chapter 9 concludes the thesis.

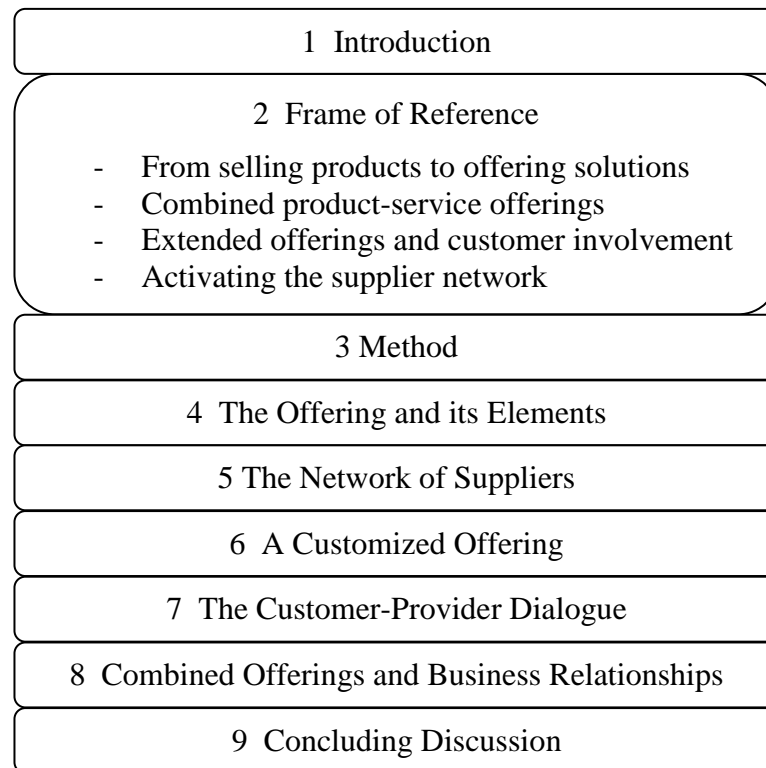


Figure 1.1: *The structure of the thesis*

2 Frame of Reference

The frame of reference consists of four parts. Section 2.1 describes the development towards increasing service contents in the offerings that are made available to customers. The chapter continues in 2.2 with a discussion of the various elements of an extended offering and the principles for combining them into total solutions. In 2.3 the role of customer involvement in these processes is analyzed, and key characteristics of business relationships with customers are identified. A similar discussion regarding suppliers follows in 2.4 concerning their activation and participation. The chapter ends with 2.5 where the research issues of the study are formulated.

2.1 From selling products to offering solutions

The introduction pointed out an increasing interest of companies to deliver complete offerings to their customers. This development is part of a long-term process of change where companies “*have gone from offering products to offering products/services and then to offering solutions to improve their competitive position*” (Cova and Salle, 2008:270). For example, Levitt (1969) claimed forty years ago that:

“the new competition does not occur between what companies produce in their factories, but between what they add to these products in the form of packages, service, advertisements, financing, ways of delivery, stock policies and everything else that customers may value”.

Services always have played a central role in business-to-business marketing and purchasing. For example, Ames (1970:95) identified “*designing the product/service package*” as one of four key dimensions of a customer-oriented approach. Webster (1984) concluded that such an offering rarely is limited to a standard product, but is complemented with a number of services that sometimes are more important than the product itself.

This means that manufacturing companies have always been more or less involved in service provisions such as technical services and after-sales services. What has happened during

recent decades is that *“many industrial companies have identified services as a platform for company growth and competitiveness”* (Jacob and Ulaga, 2008:251). These transformations from a *“product-centric logic to a customer-centric logic”* require organizational changes (Cova and Salle, 2008:272). Furthermore, company cultures need modification; for example, firms have to *“change their mindset from services as add-on, to services as value added”* (Gebauer and Friedli, 2005:70).

As mentioned in the introduction, it is possible to identify three major causes behind the development of extended products and solution offerings. The first is linked to the efforts of companies to de-commoditize, in the ambition to avoid having the offering perceived as a standardized commodity, with all the problems this would cause (Matthyssens and Vanderbempt, 2008). Thoben et al. (2001) are of similar opinion, and their conclusion is that product extension provides the supplier with a means to differentiate the offering from competitors. Anderson and Narus (2004) argue that as a product’s lifecycle matures, and the experience of buyers increase, there is a risk that the offering will be perceived a commodity. A product offering that is complemented with services provides opportunities for differentiation in term of what is identified as ‘flexible market offerings’, consisting of combinations of products and services, some of which are standardized while some are customized (ibid.). Nordin and Kowalkowski (2010) conclude that such differentiation is a way to escape the commodity magnet and its corresponding reduction of profit margins. Several studies demonstrate that enhanced service content reduces the risk that the offering is considered to be a commodity. Such examples can be found in the steel industry (Albert, 2003), the chemical industry (Robinson et al., 2002), the dairy industry (Windahl and Lakemond, 2006), and the construction industry (Brady et al., 2005). Even when manufacturers have limited experience of services beforehand, they are perceived to be *“well positioned to carry out many downstream activities, from just providing financing and maintenance to supplying spare parts and consumables”* (Wise and Baumgartner, 1999:134).

The second reason for increasing service contents is the requirements for customer-specific solutions. This factor is considered to be the main driving force by Stremersch et al. (2001:2) in the claim that *“industrial firms increasingly demand turnkey solutions to problems instead of products that only partially solve their problems”*.

This type of customized offerings became more important in the early 1990s as a result of technical progress that made individualized solutions economically possible without mass production (Lampel and Minzberg, 1996). This development, identified as mass customization (Feitzinger and Lee, 1997), has continued. It is found in a recent study that customization has become an established concept in most industries, although the phenomenon has not “*completely swept away the remains of mass production*” (Salvador et al., 2002). The increased interest in customization is partly explained by the fact that customers require solutions that are tailored to their specific needs (Nordin and Kowalkowski, 2010). Another, and perhaps more important, reason is that customization has been driven by suppliers and provided selling firms with an approach that is claimed to improve the competitive position of the company (Kotha 1995; Stump et al., 2002). These customized offerings are characterized by huge diversity and range from solutions that are more or less uniquely tailored to an individual user to “*slight variations of the standard configurations*” (Ulrich and Eppinger, 1995:22).

The third reason that was identified in the introduction is that extended offerings, including various services, connect the buyer to the supplier throughout the product lifecycle. Durable manufactured goods such as paper machines and trucks require services as they move through their lifecycles. Therefore, the total cost of ownership is substantial because of the need for spare parts and maintenance (Oliva and Kallenberg, 2003). Involvement in these service activities makes it possible for the supplier to maintain and develop the business with the buyer. Activities of that kind prevent the supplier from losing customer contact after the warranty period has expired, thus continuing to generate income even after the operational period (Jansson et al., 2003). Of great importance for future product development are the opportunities for feedback, regarding the features and performance of the offering and how it has corresponded to the buyer's requirements. After this initial discussion, the central characteristics of a supplier's business offering are presented in 2.2.

2.2 Combined product-service offerings

2.2.1 The elements of the offering

The extended offering is a solution which contributes to producing value for the customer. These solutions “*consist in part of products and services but they also consist of the knowledge, experience and thinking it takes to make the components work together*” (Sharma and Molloy, 1999:2). In the wording of Tuli et al. (2007:1) an extended offering/solution is “*a customized and integrated combination of goods and services for meeting a customer’s business needs.*” The main building blocks of an extended offering are characterized in several ways where the common view is that a ‘core product’ is surrounded by services to form a more comprehensive offering that enhances the value of the offering. See Table 2.1 for some examples.

Kotler (1980):

Core product → Tangible product → Augmented product

Anderson and Narus (2004):

Core product → Augmented product → Potential product

Thoben et al. (2001):

Core product → Tangible product → Non-tangible product

Lindgren and Wynstra (2005):

Core product → Expected product → Augmented product → Potential product

Table 2.1 Four illustrations of extended offerings

The first layer of the extended offering – ‘the core product’ – represents “*the fundamental, functional performance a generic product provides that solves a customer’s basic problem*” (Anderson and Narus, 2004:175), for example a car or a PC. The second layer adds “*those services, programs and systems a supplier offers to meet a broader set of requirements and preferences*” (ibid.:176), including, for example, installation, warranties, after-sales services. The third (and the fourth) layer, finally, incorporates “*any imaginable product change or service, program, or system, a supplier might create to add value or reduce cost in ways that set itself apart from others*” (ibid.), including brand, style and image. The additional layers, thus, encompass various types of services that differentiate the core product in relation to both customers and competitors.

For example, a paper machine manufacturer may offer extensions of the core product in terms of training, maintenance, remote operation, know-how services, suitable integrated automation systems and financial arrangements (Jansson et al., 2003). White et al. (1999) distinguish between what they identify as ‘traditional services’, such as warranties and maintenance agreements, and more advanced product-based services. These types of services include, for example, ‘chemical management services’ provided by Castrol and ‘integrated document services’ by Xerox. These offerings are examples of what Stremersch et al. (2001:2) call ‘full-service contracts’, which involve “*all curative, preventive, and predictive maintenance activities in an entire production site*”. One of the examples relates to SKF who, instead of identifying itself as a supplier of roller bearings, provides “*trouble-free operations*” by a “*full package of products and services, such as technical and logistical assistance, training, monitoring, tools and appliances, and preventive and predictive maintenance*” (ibid. p. 2). Other examples include the train manufacturer Alstom Transport offering solutions for ‘train availability’ and Thales Training – a flight simulation manufacturer – providing military customers with ‘flight training’ solutions (Davies et al., 2006). After this overview of the elements that form extended offerings, different principles for the combination of these elements are discussed below.

2.2.2 Principles for combining offerings

Cova and Salle (2008:272) highlight two key aspects of the principles for the formulation of extended offerings. The first has to do with the scope, “*the content of the offering and more particularly the service dimension*”, while the second is related to the different components interconnected, “*the combination of the elements*”. Concerning the first of these issues we rely on a slightly different categorization of offerings presented in Ford et al. (2006:50), distinguishing between five elements: products, services, delivery, advice and cost & price:

“- *Business purchases are driven by specific problems.*

- *Customers are seeking solutions to their problems.*

- *Solutions require an offering from a supplier.*

Offerings consist of a combination of: products/services/advice and delivery at a particular cost that will include but not be limited to the price paid. The solution to customer problems may also require adaptation by the supplier and effort and adaptation by the customer”.

Products

The product represents the hardware of the offering. An offering may include one product (for example a component or a sub-system), but can sometimes include several products as in the case of restaurant furniture. The product is the physical part of an offering and therefore the most obvious element owing to its visibility. Often the product is considered to be the most important part of the offering, which is not always true. Sometimes the product element may be relatively unimportant in the total solution provided to the customer.

Services

Ford et al. (2006) share the conclusion above that service elements have become increasingly important over time. Some customers now choose to solve their problems by purchasing a service instead of a product – for example by leasing equipment rather than buying. Some airline companies do not buy engines for their aircrafts but contract with a supplier to pay for ‘power-by-the hour’. ‘Trouble-free operations’ and ‘chemical management services’ that were mentioned above are examples of the same tendency.

Delivery

Delivery, or fulfilment, is a service considered so important that it deserves the position as an element on its own. For the buyer delivery can be the most vital element of the offering, since “*where, when, how and in what form an offering is delivered is often critical in solving a customer’s problem*” (ibid. p. 166). Delivery is particularly important when the product and the other service elements are difficult to differentiate. The delivery element can vary from relatively straightforward solutions to more complex and costly logistical arrangements.

Advice

The advice element of an offering consists of all the efforts of a provider which aim at increasing the customer understanding of the offering and its abilities. The importance of advice depends on the nature of the offering and the solution required by the customer. The advice element requires communication skills, but is very different from ‘hard selling’. Advice is an interactive process that takes place in supplier-customer relationships, where customers can contribute substantially to the development of the offering.

Cost and price

The economic conditions regarding an offering are always significant. Price represents the revenue of the seller and part of the cost for the customer. Sometimes price is a small part of the buyer's overall cost of obtaining and using the offering. Buying firms evaluate the potential benefits and the total costs of an offering differently. What a customer is prepared to pay for an offering is not necessarily related to the total costs of the provider.

According to Ford et al. (2006) the five offering elements are inter-related and in some situations substitutable for each other. This takes us to the second of the issues brought up by Cova and Salle (2008) – the combining of the elements. These conditions can be illustrated by four types of offerings in relation to a customer in need of transportation services – see Table 2.2.

- Supplier 1 provides an offering built round the sale of a fleet of delivery trucks that are purchased by the customer. The customer would then be responsible for recruiting and managing drivers for the trucks, for scheduling and for using the trucks to make deliveries and for maintaining the trucks during their life.
- Supplier 2 provides an offering that does not include the purchase of the trucks. Instead it could provide a service by hiring delivery trucks, maintained by the supplier, with guaranteed availability at a fixed mileage charge.
- Supplier 3 provides a different offering by buying the customer's current fleet from it, managing the vehicles and making deliveries for the customer.
- Supplier 4 simply provides the service of delivering the customer's goods in the supplier's own vehicles with a guaranteed speed and reliability level and charge per item delivered.

Table 2.2 *Four types of transportation offerings (Source: Ford et al. 2006:168)*

Table 2.2 illustrates clearly the variation that is possible when it comes to the design of the offerings. In this case, it involves four providers that have developed various offerings. This is a question of whether one and the same offering should be supplied to all customers or if adaptations should be made to the particular requirements of individual customers. According to Ford et al. (2003:177), “*adaptations are a vital but problematic issue*” in the combining of offerings. It is problematic because on the one hand adaptations make it possible to fit the offering better in relation to the specific demands of one customer.

On the other hand, all adjustments and modifications are costly and must therefore be restricted to situations where they contribute substantially to the customer's perception of value. Adaptations can be made to any of the elements of an offering "*but it is important to keep in mind that the different elements of an offering are inter-related*" (Ford et al., 2003:178). This means that modification of a single element may require changes in one or more of the others.

The above discussion of adaptations emphasizes one of the strategic issues in the combining of solution offerings raised by Davies et al. (2007): standardization versus customization. Providing a customized solution is no problem per se – the challenge is to do this at reasonable cost, since customization is always resource-demanding.

Therefore, the authors suggest an offering consisting of a basic modular system of components that are possible to configure and reconfigure in relation to various customer demands. In this way the supplier benefits from the cost advantages of standardized elements, while retaining the flexibility in combining a variety of offerings. In addition the standardized elements can be supplemented with some customized elements for buyers demanding more advanced offerings. Figure 2.1 shows how this approach can be applied for the combining of the offering elements of a provider of information technology services.

	<i>Product dimension</i>	<i>Service dimension</i>
Offered as standard	Numerical control	Delivery
	CRT terminal	Installation
	Drive motors	Physical setup
	Basic software	Basic training
Offered as options	Program panel	Three-year guarantee
	Interactive screen	Advanced training
	Advanced hardware	Field engineering
Offered as customized	System package	Vendor-managed inventory
		Running the operations

Figure 2.1 *Elements of the offering of a provider of information technology services*
(Source: Håkansson et al., 2009:118)

So far, the framework has focused on the content of an extended offering and viewed the situation from the provider's perspective. An important complement to this part of the frame of reference is to highlight the potential buyer's perspective, and to take into account that the

provider rarely can be responsible for all parts of an extended offering (as indicated in Chapter 1). Arguments for this conclusion are claimed by Cova and Salle (2008). These authors consider the development of an extended offering into a solution for a specific customer, as a joint process between three types of actors (Figure 2.2). The extended offering is co-created by the supplier and the specific customer and in this process the networks around the two parties are involved. In the section below we consider the extended offering from the perspective of the buying firm and its network.

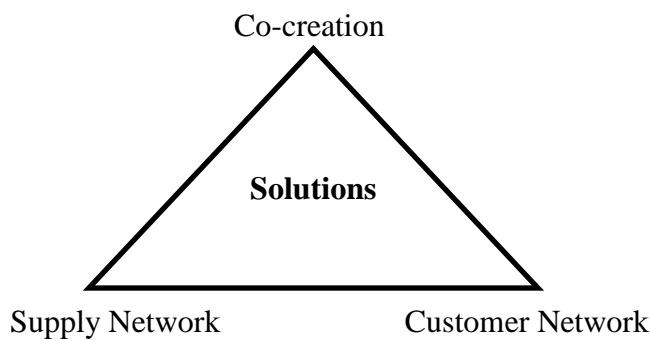


Figure 2.2 *Joint development of extended offerings*
(Source: Cova and Salle, 2008:271)

2.3 Extended offerings and customer involvement

Since extended offerings are supposed to be perceived by potential buyers as solutions to their tasks and problems, the role of the customer is vital in the development and combining of the offering elements. The view expressed in Figure 2.2 of customers as co-creators of extended offerings is confirmed in other studies. The need to involve customers is stressed by Windahl and Lakemond (2006:807) in claiming that the enhanced attention to solutions require a shift from focusing production towards focusing use – “*from output (of the production process) to input (in the value-creating process of the customer)*”. In their study they found that close cooperation with the customer was central for the outcome of the project. They also concluded that advanced offerings, involving many elements with complex interfaces, increase the demands on customer involvement.

In similar vein Cornet et al. (2000) claim that solutions are co-created by a customer and a provider and cover commercial, operational and financial aspects of the relationship between

them. Matthyssens and Vanderbempt (2008) observed that value-creation efforts of providers required closer bonds not only with customers, but also with customers' customers. The lack of such connections has proved to be a severe drawback, witnessed by Windahl and Lakemond (2006:813) in the finding that the provider "*underestimated the importance of a close relationship with end-customers*". The analysis of the role of the customer deals with two central issues in relationships. The first is about interaction between buyer and provider in the business deal, while the second brings up central features of business relationships with customers.

2.3.1 Interaction with customers

The role of the customer in the combining of offerings only seldom begins with "*a customer's specification of formal and discrete product requirements*" (Bonney and Williams (2009:1033). A more common approach is an interactive and emergent process with a significant degree of interaction between the provider and the recipient of the offering (Nordin and Kowalkowski, 2010).

This type of process is required because considerable buyer-seller interaction is needed in order to match the capabilities of the provider and the needs of the customer (Hallén et al., 1991). The iterations concerned with the combining of a customized offering is supposed to be based on "*open dialogue, process flow optimization projects, co-marketing initiatives and knowledge sharing*" (Matthyssens and Vanderbempt, 2008:325). These relationship conditions in turn take time to develop and thus call for more long-term relationships between customer and provider (Tuli et al., 2007).

With this background Figure 2.3 can be used for a discussion of the interaction between provider and customer in the joint development of an extended offering.

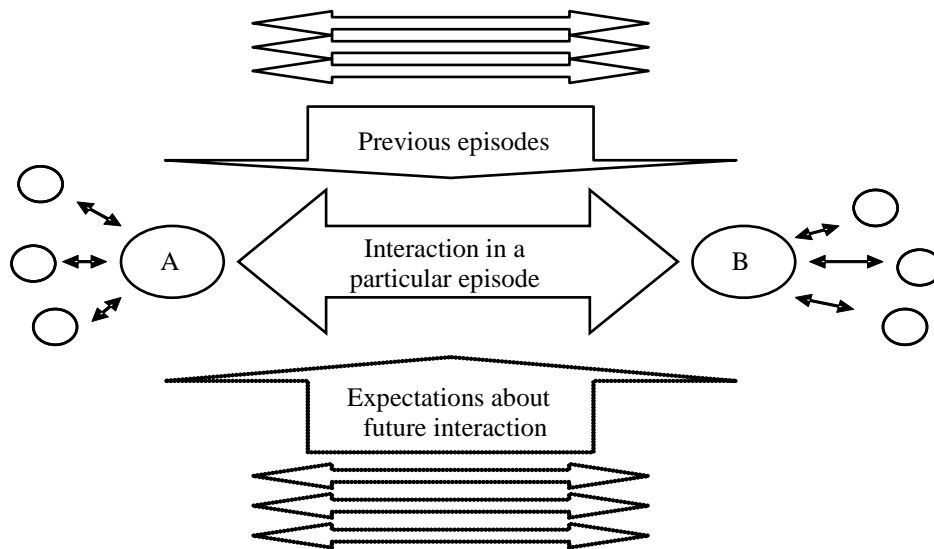


Figure 2.3 *Relationship interaction in its time and space context*
(Source: Gadde et al., 2010:113)

In Figure 2.3 Seller A and Buyer B interact in the development of the features of an extended offering. In the terminology of Håkansson et al. (2009), A and B are involved in a specific interaction episode. The interaction between the two, and the outcome of the episode, is determined by the two contexts in which it resides – a space context and a time context. The space context is crucial for the outcome since both the customers of B and the suppliers of A will affect – and be affected by – the extension of the offering. B's evaluation of the advantages and disadvantages of particular augmentations is highly affected by the consequences for its customers. Furthermore, it was claimed already in the Introduction that it is seldom possible for a provider to design and implement an extended offering on the basis of its internal resources. What a provider can do in this respect is to a great extent determined by the resources that can be accessed from its suppliers. Therefore, the space context in terms of the supplier network of A is crucial for the interaction in the same way as the customers of B are. Moreover, provider A is involved in interaction about its offering also with other customers. What can be done in relation to customer B is therefore affected also by the outcome of these other ongoing customer dialogues. The more similar the requirements of the customers are, the greater the economies of scale in the operations of A and the more favourable the economic conditions for the customers, B included.

The more diverse the requirements of B in relation to other customers, the higher the costs for A to satisfy the specific requests of B. The general impact of the space context on interaction episodes is illustrated in, for example, Anderson et al. (1994) and Håkansson and Waluszewski (2002). The specific impact of the space context with regard to customized offerings is made clear in a study of upgrading of offerings in the steel industry. One of the main conclusions of the research was that the implementation of a new steel quality in the operations of customers “*involved not only the prospective buyers and the seller but also other firms and their resources*” (Skarp and Gadde, 2008:733). Therefore, a fundamental competence for a provider of customized offerings is the ability to “*mobilize a development net containing firms having the required capabilities*” (Möller, 2006:920).

The time context of the interaction between A and B is important in two respects. First, the outcome of the current episode is to a large extent determined by the previous interaction between A and B. In long-term relationships the two parties share a joint history, involving learning, adaptations, conflict resolution, as well as formation of trust and commitment. The current episode is patterned by the experience of these previous interactions, which can either be favourable or function as constraints. Of particular importance for the outcome are the adaptations that have been established between the two parties. These adaptations take various forms and concern, for example, product features, production systems, logistics arrangements, administrative systems, information technology services and others.

Adaptations provide relationships with a particular content, identified as relationship substance (Håkansson and Snehota, 1995). This substance has three central ingredients: the links between the activities of the two, the ways their resources are tied together and the bonds between the actors in the two organizations. What has been attained in terms of adaptations will significantly impact on the outcome of the current episode. Moreover, the time context has a dual role for the interaction between A and B. What takes place in the current episode is dependent not only on what has happened before, but also on the expectations concerning their future interaction. For example, A will be more inclined to extend and individualize its offering in relation to B if B is assumed to be an important customer in the future.

It was claimed above that the actual combination of an offering seldom results from a customer specification. Nor is it the outcome of isolated decisions of the provider. Interaction

between the parties is required because the potential connections between the offering and the environment where it is to be used are often too complex to be predicted beforehand, which makes it difficult to get everything right from the outset (von Hippel and Tyre, 1995). However, through the iterative interaction processes, buyer and provider identify a lot of opportunities when they learn about their joint possibilities. The matching of needs and capabilities may result in many forms of individualization of the offering which can be “customized in the following aspects: design, assembly, delivery, operation or pricing” (Cornet et al., 2000:2).

Interaction provides other advantages as well. For example, interaction makes it possible to escape two of the pitfalls characterizing ‘isolated’ offering development. One of these is when a supplier takes its own capabilities as the point of departure, rather than the customer needs. This is not uncommon and causes severe problems because in many cases providers do not completely understand the role of their products in the use context of the buyer (Johansson et al., 2003). The other problem is discussed by Anderson and Narus (1995:75) where it is claimed that instead of tailoring their offerings to customers’ individual needs “*many suppliers simply add layer upon layer of services to their offerings*”. This means that customers are offered more services than they want or need. Moreover these extended offerings “*reflect neither the value of those services to customers nor the cost of providing them*” (ibid.). In these business transactions the extended offering thus represents a ‘lose-lose situation’, rather than a ‘win-win’. Obviously, customer-provider interaction in the design of the offering would reduce such problems. The outcome of this interaction is affected by the nature of the business relationship between the customer and the provider of the offering. These features are discussed in the section below.

2.3.2 Central features of relationships with customers

The relationships to other firms are highly significant to any company. In fact, the business relationships have been characterized as “*a company’s most important assets, because without them it cannot gain access to the resources of others, acquire the supply it needs or solve its customers’ problems and thus generate revenue*” (Ford et al., 2003:49).

Business relationships are valuable in many respects. They may be used in several value-generating efforts, such as rationalization of operational efficiency, as sources of

technological innovation and as a means of influencing other firms. The value of a specific relationship depends on the involvement of the two parties and to what extent they are prepared to undertake joint actions and investments. One important aspect of this framework is therefore to identify relevant characteristics and features of these business relationships.

According to Ford et al. (2003:49) “*relationships are not simple mechanical constructions*”. They are also social entities and the possible benefits are highly contingent on how individuals act, react, interact and learn from each other. As a complement to the characteristics of the relationship between firms, the framework needs some concepts to analyze the relations between individuals.

The first part of this section is focused on the central features of business relationships. It is based on the model of structural characteristics of relationships between firms developed by Håkansson and Snehota (1995). The authors identify four aspects of these structural features: i) continuity, ii) complexity, iii) informality, and iv) symmetry. These characteristics are summarized in the following section:

i) Continuity

Continuity is a consequence of relationships between firms where business transactions are on-going from year to year. Håkansson and Snehota (1995:7) argue that “*major supplier and customer relationships of a company often show a striking continuity and a relative stability*”. An important outcome of this continuity is that relationships tend to become stable over time. Major supplier and customer relationships are successively built up and, during the evolution of the relationship, the involvement of the firms often changes from limited to close. The two firms in a relationship adapt their resources and activities in order to improve their joint performance (Gadde et al., 2010). These adaptations pay off over time only, and therefore a long-term perspective is required which promotes continuity. The longevity of business relationships has been pointed out in several studies, for example Hallén et al., (1991), Gadde and Mattsson (1987) and Dubois et al. (2003). A significant consequence for the firms in a relationship is that continuity is a precondition for change and development (Håkansson and Snehota, 1995).

ii) Complexity

Business relationships are *complex* in several dimensions. One dimension concerns the number of people involved in the business transactions. These individuals have different roles and different personal backgrounds. The more individuals that are involved, the greater the complexity. Furthermore, these individuals represent their respective functions, such as sales, R&D, purchasing, finance etc., each with its particular interest in the relationship. Moreover, various organizational levels are involved, which adds to complexity. These conditions make interaction in a business relationship a complicated issue. However, interaction is also a means of handling the underlying complexity in the relationship that stems from joint investments and adaptations (Gadde and Håkansson, 1993). These adaptations may concern product attributes, technological development, logistical arrangements and information systems. Joint investments of these types improve performance at the same time as they enhance complexity and are undertaken because “*established and well-functioning relationships are bound to be exploited for different purposes*” (Håkansson and Snehota, 1995; 8). Such relationships impose interdependence between the firms, which is discussed later.

iii) Informality

Business relationships are often characterized by *informality*. A low degree of formalization is explained by the fact that formal contracts are “*often ineffective in taking care of the uncertainties, conflicts and crisis that a business relationship is bound to go through over time*” (Håkansson and Snehota, 1995:8). It is difficult to cover all aspects of a complex relationship in a formal contract. Some firms may therefore decide to rely on an informal approach instead of trying to include every possible aspect in a formal contract, while others strive to include as much as possible in the business contract. Irrespective of the approach applied, there are always some issues and agreements that are manifested in formal contracts. There is thus huge variation between relationships when it comes to the level of formalization. Also within a relationship the formalization varies and Torvatn (1996) argues that relationships over time become less dependent on contractual conditions. Gadde and Håkansson (1993) claim that informal aspects play important roles in the ambitions to influence the business partner in the relationship. The interacting counterparts may find that a formal contract is not necessary if their relationship is perceived as close and to a higher degree based on trust. Håkansson and Snehota (1995) argue that informality is closely related to the time dimension, as relationships are influenced by past experiences such as trust and

confidence. However, there are always uncertainties concerning what to expect of future interaction.

iv) *Symmetry*

Symmetry between the firms in a relationship is a result of close and long-term interaction. In major relationships there seems to be a balance between the resources and capabilities on the two sides. This is an effect of the adaptations and joint efforts over time. However, these general conditions are not at hand in every relationship. The business status of the firms is likely to differ between the counterparts. Some firms may have a stronger position and more resources than others, which leads to an asymmetric situation. However, as a relationship evolves over time, the resources tend to become more symmetrical. Håkansson and Snehota (1995:8) express this in the following way: *“The amount of resources controlled and thus the possibilities to exercise influence, to take the initiative and promote changes, appear more balanced”*.

The structural characteristics of long-term relationships between firms thus often prove to be symmetrical, with a striking continuity, a relative stability, and a high degree of complexity. Figure 2.4 summarizes the structural characteristics of business relationships.

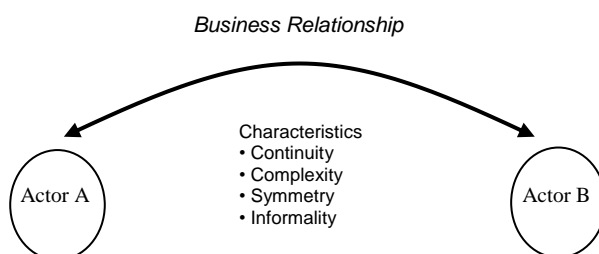


Figure 2.4 *Characteristics of relationships with customers*

For this analytical framework, the characteristics of relationships between firms are complemented with a reference that focuses on social relationships between individuals. Studies of business relationships have pointed out the significance of individuals in what is on-going between the firms.

This part of the framework is based on the social parameters identified by Granovetter (1973) in his exploration of strong and weak ties. In this analysis he claims that *"the strength of a tie*

is a...combination of the amount of time, the emotional intensity, the intimacy (mutual confiding), and the reciprocal services which characterize the tie" (Granovetter, 1973:1361). These parameters are supposed to be inter-related and somewhat interdependent. Below we discuss the four social parameters: i) Time, ii) Intensity, iii) Intimacy and iv) Reciprocal services.

i) Time

Time is generally about the quantified amount of time spent on a relationship. Granovetter (1973) argues that strong ties between individuals in a relationship involve larger time commitments. The amount of time will affect how strong the relationship is perceived by those who are directly or indirectly involved. Granovetter agrees with Homans (1950; 133) in claiming that *"the more frequently persons interact with one another, the stronger their sentiments of friendship for one another are apt to be"*. Above it was argued that interaction in a business relationship at a particular point in time is dependent on the previous interaction between the two. Since it is always people that interact, these conditions are crucial when it comes to relations between individuals. In this respect it is claimed that *"history is important for the interaction today, but it is not decisive with regard to the outcome because the current episode may have its own logic"* (Jahre et al., 2006:54). This indicates that what happens today is affected by what happened yesterday, but is not completely determined by it. Individuals always bring with them their histories and memories of previous interaction. Moreover, the interaction today is affected by the expectations regarding coming episodes.

ii) Intensity

Intensity concerns the level of emotions and its impact on relationships and ties. Granovetter (1973) argues that the emotional intensity among the individuals involved affects their interaction and their relations. The relationship intensity has its particular impact on the transmission of information. According to Granovetter (1973) weak ties can negatively affect the transmission probabilities in comparison with average or strong ties. The embeddedness of the individuals has clear implications for the spread of information because *"if one tells a rumour to all his close friends, and they do likewise, many will hear the rumour a second and third time, since those linked by strong ties tend to share friends"* (Granovetter 1973:1366).

This means that strong ties reinforce the message through repetition among the group of individuals joined by strong ties. On the other hand, weak ties among individuals are likely to

generate low emotional intensity. Weak ties imply that more people can be reached, but the power of the message is weaker.

iii) *Intimacy*

Intimacy is an effect of mutual confidence between individuals. Granovetter (1973:1364) claims that the “*strong ties became increasingly frequent as people knew one another longer and better*”. Intimacy is closely related to trust and reliability. A social relationship based on trust and reliability is normally characterized by lower uncertainty between individuals, compared to a relationship where the individuals do not trust one another. Granovetter (1973:1374) argues that trust “*is integrally related to the capacity to predict and affect their behaviour*” and is thus determining the expectations about the future. Trust and reliability take time to develop and are normally results of a close and long-term relationship.

When trust and intimacy are established in a relationship, individuals dare to reduce their back-up resources that otherwise have been allocated to reduce or meet uncertainties. The network effect related to intimacy is obvious since “*personal experience of individuals is closely bound-up with larger-scale aspects of social structure, well beyond the purview or control of particular individuals*” (Granovetter, 1973:1377).

iv) *Reciprocal services*

The importance of reciprocal services follows from the mutuality among the individuals in a relationship. Reciprocity requires individuals to consider what is beneficial for the business partner. In order to achieve mutual gains, individuals strive to strengthen their social bonds. Reciprocity and mutual gains are not limited to relationships based on strong ties but may also be significant in individual relationships with weak ties.

Related to the information sharing discussed above, the striving for mutual gains may lead to unexpected outcomes, illustrated by the observation that “*it is remarkable that people receive crucial information from individuals whose very existence they have forgotten*” (Granovetter, 1973:1372).

Figure 2.5 illustrates the four social parameters.

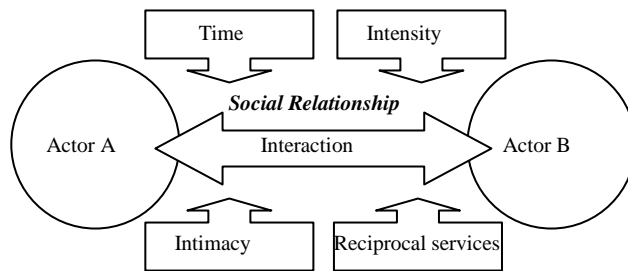


Figure 2.5 Social parameters of relationships between individuals

After the discussion of the customer side and the central features of business relationships and relations between individuals, we turn our attention to the role of suppliers and the activation of the supplier network in the coming final part of the framework.

2.4 Activating the supplier network

It was claimed in the Introduction that the provider of the offering needs to exploit resources in its network of suppliers in order to be able to supply customized offerings. In a study of extended offerings in the agri-food industry (Hunt et al., 2005:393) the following conclusion is drawn:

“The creation of an extended enterprise is inevitable in order to efficiently utilize all of the relevant human, organizational, and business resources and to facilitate the necessary interdependencies between the suppliers (farmers) manufacturers, sellers, and ultimately customers. In the Extended Enterprise model core product functionalities are provided separately by individual enterprises that come together to provide a customer defined product or service.”

It is claimed thus that extended offerings call for an extended enterprise on the supply side. The main explanations for these conditions are the increasing complexity of offerings and the fact that many firms have outsourced a major part of their production activities to external manufacturers and become “integrators of somebody else’s activities” (Davies et al., 2006:188).

Therefore, the benefits of an offering delivered to the buyer stem from the joint efforts of the provider and its supplier network. Mobilization and activation of business partners are thus main concerns in any development of offerings (Cova and Salle, 2008). The need for mobilization of external resources is not specific for the configuring of extended offerings, but is of more general applicability. The main reason for this mobilization is that companies have streamlined their operations by focusing on a limited part of the value chains in which they are involved. Outsourcing of all that is not perceived as core activities has increased the purchase part of the company's total cost. In this way, the company's suppliers become more important, since they account for a significant share of the buyer's total expenditures. Moreover they provide the buyer with much of the technological skills needed (Gadde et al., 2010). The individual company is therefore heavily dependent on the resources of these business partners.

The consequence of this dependence is expressed in a significant way in the quotation by De Meyer and Vereecke (2009): "*The strength of a multinational manufacturing company lies precisely in its ability to exploit a network of knowledge*". These issues are dealt with in this part of the framework describing central features of the supplier network and the relationships with individual suppliers as well as their roles in the combining of extended offerings.

2.4.1 The network of suppliers

Figure 2.6 is a highly simplified illustration of the network around a mechanical engineering company.

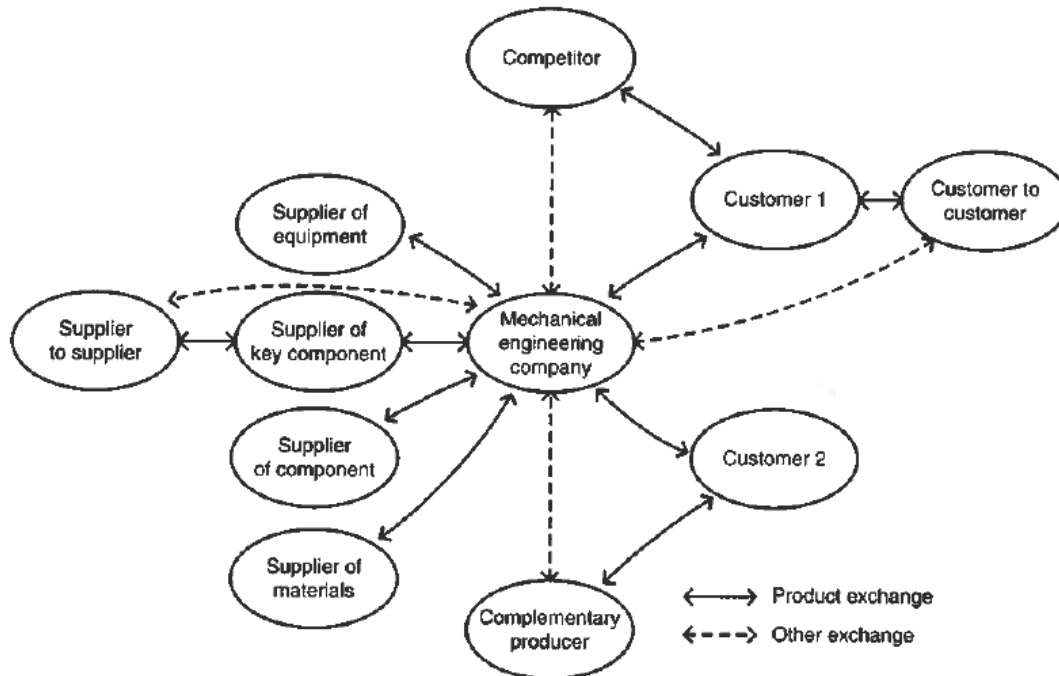


Figure 2.6 *The business network around a mechanical engineering company*

(Source: Gadde, Håkansson and Persson, 2010:14)

The focal firm in Figure 2.6 is a mechanical engineering company supplying offerings to Customer 1 and Customer 2. The specific combination of these offerings is dependent on what the customer's customer needs. The supplier's ability to provide these offerings is dependent on internal skills and resources within the own organization.

The possibilities are also strongly dictated by the abilities and resources made available by the company's own suppliers of material, components and equipment, but also of the complementary producer, and sometimes also the competitors. For this analysis we are concerned mainly with the suppliers to the focal supplier, which together form the supplier base of the company. This network of suppliers is one of the most important resources of any company and provides the basis for all rationalization and development efforts that take place in the firm. The supplier base is characterized by three central features: variety, complexity and heterogeneity (Gadde et al., 2010).

The supplier base of a company features huge variety in terms of the goods and the services supplied by companies that differ considerably, for example in scale and technological sophistication. This variety provides particular opportunities when it comes to differentiation of offerings. At the same time, however, they impose challenges for the handling of the diversity of the relationships. The supplier base is complex owing to the substantial requirements for coordination of the activities and resources of the buying firm and its suppliers. This coordination can take different forms and the buyer can choose to use a large number of component suppliers, or a limited number of sub-system suppliers, or a single source of a total solution. Each alternative has its specific requirements for coordination and also its particular performance consequences. Finally, the supplier base is characterized by heterogeneity, implying that each supplier represents a unique constellation of resources. The value of a supplier therefore depends on the way in which its resources are exploited and how these fit with the resources of the counterpart. Variety, complexity and heterogeneity are features that make supply organization crucial, involving *“the process of selecting the structure and formal system communication, division of labour, coordination, control, authority and responsibility”* (Trent, 2004:4). The organization of supply deals with two main aspects: one is internal and the other external (Gadde et al., 2010).

For the internal organizing of the operations on the supply side, two issues are central. The first is to design the organization in order to stimulate connections between purchasing and other functions with influence on suppliers. Cross-functional teams have been promoted to secure appropriate couplings between, for example, purchasing, product development, production and also representatives of suppliers. Over time the connections between purchasing and the technical functions of the company have become increasingly important. This is because what is bought in terms of components, equipment, and systems are increasingly complex, which enhances the demand for technological competence in the purchasing process (Gadde et al., 2010). When it comes to issues concerning the degree of extension of the offering to customers, it seems necessary to expand these cross-functional teams. Considering the importance of the customer, as spelled out in section 2.3, it must be relevant to include people from the buying firm as well as representatives of those functions in the own company that are most involved with the business partner. The urgency of interaction in teams is highlighted in several articles.

For example, it is claimed that the development of an integrated solution “*requires both internal coordination among business units and more intense external cooperation with actors in the wider business network*” (Matthyssens and Vanderbempt, 2008:325).

The second major issue in internal organization is the choice between centralization and decentralization. Most of the firms exemplified in the analysis of the occurrence of extended offering are large enterprises with numerous factories and business units around the world. Whether the company relies on centralization or decentralization affects the conditions for augmentation considerably. A decentralized approach makes it possible for individual business units to decide locally on the degree of extension of their offerings. In a centralized company there is a unified approach for these decisions. The choice between the two has clear implications for the supplier base. With a centralized approach the local business unit must rely on the suppliers that are selected centrally. This condition will favour the economies of scale of the purchasing operations. On the other hand it might be more difficult to exploit the specific supplier resources that could be useful in satisfying the particular requirements of an individual customer.

The external organizing in relation to suppliers has not been discussed much in the purchasing literature. According to Gadde et al. (2010) the external orientation has mainly concerned what sourcing strategy to apply in terms of (i) the choice between single and multiple sourcing and (ii) the size of the supplier base. Over time it is possible to trace a development from multiple sourcing to increasing reliance on single sourcing. Previous efforts to minimize dependence on individual suppliers by using several competing sources have been abandoned by many firms. The main reason behind this strategic change is that joint development and utilization of supplier resources require a shift from arm's-length conditions to collaborative relationships. Moreover, by concentrating purchases to one supplier the buying firm benefits from increasing economies of scale and is perceived as a more interesting business partner. In relation to extended offerings and enhanced customization, the supplier of such offerings needs to collaborate closely with the vendors of components and sub-systems that are adapted to the specific requirements of the buyers of these market offerings. In addition, it has been observed that “partnerships are often formed with companies providing complementary products” (Windahl and Lakemond, 2006:807).

What should be the appropriate size of the supplier base is also subject to reinterpretation. Arm's-length relationships lead to a huge supplier base to secure competition between potential vendors. In recent decades, however, most firms have reduced the size of the supplier base, which is explained by four factors (Gadde et al., 2010). The first is the attention to single sourcing and close cooperation. Secondly, buying firms became aware of the substantial costs associated with the handling of a huge cadre of suppliers. Thirdly, by consolidating purchases to a limited number of suppliers the buyer benefits from what is identified as 'one-stop shopping'. Finally, enhanced attention to systems sourcing, rather than component buying, reduces the number of direct suppliers to the buying company. The combined effect on the numbers of suppliers owing to these changes is substantial, as described in Gadde et al. (2010). One consequence is that the relationships with individual suppliers have become more important, which motivates a discussion of the characteristics of supplier relationships.

2.4.2 Central features of relationships with suppliers

Relationships with suppliers share the same general characteristics as discussed for business relationships with customers in relation to Figure 2.4. Similarly, the conditions concerning relationships between individuals as described in relation to Figure 2.5 are appropriate also for supplier relationships.

What needs to be added concerns the interdependences that evolve in the relationships between a buying firm and its suppliers. Gadde and Snehota (2000:316) claim that "*managing within relationships is about coping with interdependencies*". This is in line with the statement that "*the different interdependencies are interlaced in business activity in general and affect business relationships. In some situations one type of interdependence can be dominating, but all others can also potentially exist*" (Håkansson and Snehota, 1995:13). Dubois and Håkansson (2002) argue that technical, social and economic aspects capture two crucial issues in relationships: i) creation of cost efficiency and resource allocations, ii) securing the dynamic features of relationships in terms of innovations, new knowledge, and new ways to utilize resources. Håkansson and Snehota (1989) claim that the handling of these relationship issues leads to interdependences between firms. Therefore, over time a complex set of interdependences gradually evolves in inter-organizational relationships. These interdependences can be categorized in various ways. This study adopts the classification used

by Håkansson and Snehota (1995) where five areas of interdependences are identified: i) technology, ii) knowledge, iii) social relations, iv) legal ties, v) administrative routines and systems. However, there are also other areas where interdependences reside. For example, Dubois and Håkansson (2002) discuss the impact of economic conditions and therefore a sixth category is identified in relation to financial interdependences. Below, these six areas of interdependences are discussed.

i) *Technology*

Business firms operate in the context of available technologies and the technical know-how is important for their activities. The business transactions between buyer and supplier reflect the technologies employed, It is claimed that *“linking these technologies poses specific problems and makes certain activities and adaptations more important than others”* (Håkansson and Snehota (1995:13). These adaptations affect the technical dimension of the offering that is exchanged. The technical development within one firm is dependent on the technologies of other firms in the network. Therefore, business relationships can be seen as *“links that shape and reflect the existing technology”* (Håkansson and Snehota (1995:14). Technologies can be characterized and classified in various ways.

Ford et al. (2003) identify three types of technologies that are crucial for business relationships: a) product technologies, involving the ability to design and develop particular types of products and services; b) process technologies, involving the ability to produce these products and services; and c) market technologies, involving the ability to relate products and services to the requirements of customers. The technology characterizing a relationship tends to influence not only the features of the offering that is exchanged, but also the form of business in general.

Irrespective of the type of technology employed, available technologies create interdependences. The consequences of these interdependences are significant to any firm and must be handled appropriately. Håkansson and Snehota (1995:13) argue that *“technical development within one company and in its relationships is dependent on other companies’ technologies; it is facilitated or constrained not only by those with whom the company maintains direct relationships, but also by the technology of other third parties”*. Accordingly, technology is a denominator for increased dependence between firms.

ii) *Knowledge*

A firm may become highly dependent on the knowledge of other firms. Firms represent combinations of human and physical competences with the ability to perform activities through the utilization of resources. The know-how of a firm and its individuals affects the ways in which they conduct activities and use resources. When a company carries out activities and uses resources, some kind of knowledge and know-how is needed. In this way *“the know-how of the company reflects not only the knowledge of its personnel but also that of the other companies and organizations to which it is connected through business relationships”* (Håkansson and Snehota, 1995:14). Knowledge is thus transferred in networks between firms and among individuals in established relationships. Håkansson and Snehota (1995: 14) claim that *“it is in relationships that the existing knowledge is confronted with other parties’ knowledge and new knowledge is created”*. Through outsourcing a firm may thus be able to exploit the resources and the knowledge of other firms. This strategic approach provides access to the capabilities of other firms. At the same time, however, it leads to interdependences in relation to suppliers.

iii) *Social relations*

Business relationships are handled by people that have various social roles and fulfil different obligations (Håkansson and Snehota, 1995). These conditions result in various relational interdependences. The reasons for establishing interdependences and bonds in social relations are multidimensional. According to Håkansson and Snehota (1995: 15) social bonds *“that arise among individuals in the two companies are important for mutual trust and confidence in interaction between individuals”*. Accordingly, interdependence is created when people involve in joint actions. Individuals that act on behalf of their organizations take on other roles in other situations and develop social bonds at working places, sporting clubs and religious organizations (Håkansson and Snehota, 1995). When it comes to interdependences owing to social relations, the social parameters developed in Granovetter (1973) are appropriate for analysis: time, intensity, intimacy, reciprocal services.

iv) *Legal ties*

Firms are embedded in different rules and norms. Some of these apply to various forms of ownership control. Others are guiding firms and their individuals to follow a common legal context. Legal issues cover everything from society’s legislation to business contracts between firms.

Formal cooperation agreements are of various types, such as ownership, joint ventures and licensing agreements (Håkansson and Snehota, 1995). It is claimed by several authors that informal control mechanisms in many situations are more important than legal contracts (Håkansson, 1987; Gadde and Håkansson, 1998). Furthermore, the interdependences created by technology and knowledge issues are generally far more important than those created by legal issues. One significant aspect of the legal ties is that “*they make certain relationships to suppliers, customers and third parties in a company connected and interdependent*”. (Håkansson and Snehota, 1995: 16).

v) *Administrative routines and systems*

Administrative routines and systems are implemented to improve coordination, control and follow-up through common processes and systems. In this way administrative routines are means of handling interdependences. At the same time, however, administrative systems, such as information technology solutions, logistical arrangements, and enterprise resource planning systems (ERP), create other types of interdependences which in turn must be handled. Håkansson and Snehota (1995:15) argue that the bulk of administrative activity “*is some form of information processing or control, which is necessary in order to facilitate the coordination of behaviour among different parties*”. Processing and exchange of information are often complex to handle and represent substantial costs. Håkansson and Snehota (1995) claim that industry standards and norms are possible approaches in order to stimulate suppliers and customers to use similar systems. In this way administrative systems create connections and interdependences within and between business relationships.

vi) *Financial issues*

Finally, business relationships are critical for the financial performance of a company. Håkansson and Snehota (1995:11) claim that “*market performance of a company is dependent on the functioning of its relationships to others; volumes, market share, profit and growth depend on how the company handles its relationships*”. Because firms cannot work in isolation, they become dependent on other firms. Penrose (1959:29) argues that in financial and investment decisions relationships to other firms are significant, but also featuring uncertainty (Penrose 1959, foreword: "xix").

“There are advantages for individual firms that join an alliance but there are also costs and the balance between costs and benefits can shift as activities develop and as the individual firms within the alliance continue growing which can lead to difficulties in the relationships and even to the disintegration of the alliance”. Håkansson and Snehota (1995:56) claim that *“activity links provide opportunities for an economically more advantageous balance of standardized and differentiated activities”*. Moreover, the same authors comment that *“what cost/revenue consequences of a certain relationship will be for the company will depend on the characteristics of the relationship in itself and on how it is related to other elements of the company business”* (ibid. p. 390).

2.5 Research issues

In the introduction three aims with the study were stated. The first concerns the identification of the elements that together form the extended offering and the principles for their combining in specific offerings. In the frame of reference it is shown that the extended offering consists of a combination of products and services. Furthermore, the principles for combining the offering must take the balance between standardization and customization into consideration in order to make the offering valuable for customers. As was shown in Figure 2.1, one way to handle this balancing is to offer all customers some product and service elements as basic standard, in order to benefit from economies of scale. Other standardised elements are offered as elective, and thus chosen by customers that perceive them as valuable. Finally, some elements are customized according to specific buyer requests. The first research issue is therefore about identifying the features of the product and service elements of the offering of the provider, and how these elements are combined with respect to standardization and individualization (either as electives or as customized features). The model in Figure 2.7 is an appropriate analytical tool for this research issue, distinguishing between products and services on the one hand, and standard and option on the other, where option includes both elective and customized elements.

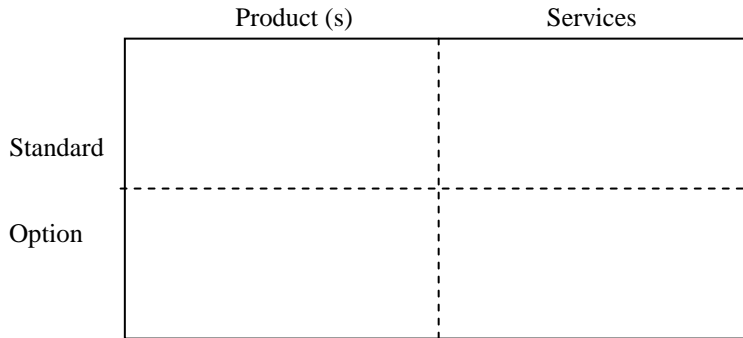


Figure 2.7 *Four categories of flexible offerings*
(Based on Anderson and Narus, 1999)

The second aim is to analyze the role of the buyer in this process. On the basis of the discussion in the framework, the corresponding research issue deals with exploration of the features of the interaction between the provider and the buyer in the development of the extended offering. In this analysis, the impact of the relationship features on the firm level (Håkansson and Snehota, 1995) is investigated in terms of:

- continuity
- complexity
- symmetry
- informality

The social relations on the individual level are explored through the four social parameters defined by Granovetter (1973), regarding:

- time
- intensity
- intimacy
- reciprocal services

The third aim, finally, is to explore how the provider's supplier network is activated in the process. Based on the analysis in the frame of reference, the third research issue is concerned with the organization and mobilization of the business partners on the supply side of the provider of the offering. In this exploration the relationships on company and individual levels presented above are analysed.

Furthermore, the interdependence between the provider and its suppliers identified by Håkansson and Snehota (1995) are discussed in terms of:

- technology
- knowledge
- social relations
- legal ties
- administrative routines and systems
- financial issues

Chapter 2 presents the framing of the study and the research issues that are derived from this framework. In the following chapter the methodological aspects of the study are discussed.

3. Method

As described in Chapter 1, this study has been undertaken in the truck industry. One reason for this choice is that there is a lack of studies of combined offerings in the capital goods industry, as explained in Chapter 1. Another reason, and probably more significant, is that I am employed by Volvo Trucks. This means that I have conducted this study as an ‘industry research student’. I came in contact with the division of Industrial Marketing through a further education program for alumni focused on marketing and purchasing. I became interested in further developing my competence and started in the doctoral program in late 2003. Initially I had the opportunity to work with my research two days a week. However, over time my working conditions became different and I have not been able to allocate so much time to the project, since I have changed positions and also changed managers.

In this chapter the methodology applied is discussed. Section 3.1 describes the methodological approach, featuring a case study, building on what is identified as systematic combining. Section 3.2 is an account of the empirical work conducted and presents the sources of information and the procedures for data collection. Section 3.3, finally, is a discussion of the credibility and trustworthiness of the study.

3.1 A case study approach

This study deals with a complex research phenomenon. Chapter 2 presented three research issues requiring information about:

- how a supplier of extended offerings combines product and service elements to a solution
- the involvement of customers in these processes
- the mobilization of the supplier network of the provider of the offering

These characteristics make a case study a relevant methodological approach. Case studies “investigate a contemporary phenomenon in its real-life context” (Yin, 1984:25).

Therefore, they are well suited for studies of complex systems and events that are unique and where broad conceptual frameworks are used (Norman, 1976). Eisenhard (1989:534) provides

another argument for this approach in the claim that “*the case study is a research strategy which focuses on understanding the dynamics within single settings*”. Qualitative case studies are frequently used by industrial marketing researchers (Dubois and Araujo, 2004), because they make possible analysis of problems in settings with unclear boundaries (Yin, 1984). In a study dealing with the issues presented in Chapter 2, the focal company must be the provider of the combined offering. Therefore, the study revolves around Volvo Trucks (VT) from Gothenburg – a world-leading supplier of heavy-duty trucks. VT is a business unit within the Volvo Group and is one of the four truck brands within the group (the others are Mack Trucks, Renault Trucks and UD Trucks). In the case study some other organizations of the Volvo Group are significant. One is Volvo Powertrain, an internal supplier of the driveline of the truck. The driveline is claimed to represent the ‘heart’ of any vehicle and includes engine, gearbox and drive axle. Another internal supplier is Volvo 3P, which is responsible for product planning, purchasing, product development and product range management for the four truck organizations. Even though all truck brands are based on common vehicle architecture and shared technology, Volvo 3P provides individualized solutions to the truck manufacturing companies. Therefore they are crucial for the efforts of VT to supply customized vehicles.

The first research issue requires information about the features of the offering of the provider, including the general principles for the combining of products and services. Accordingly, one type of data concerns the mapping of the various product and service elements that together constitute the total offering. This information was captured through interviews with representatives of Volvo Trucks and through various internal brochures and documents.

The second research issue dealing with the involvement of customers and the actual combining of specific offerings required a somewhat different approach. Since offerings are individualized, this issue cannot be tackled through information about how this is done in general, but calls for details from a specific business transaction. The second issue is therefore covered through description and analysis of the characteristics of a specific business deal with one of VT’s customers. The customer is a mid-sized transportation firm – HÅ – involved in a particular business deal in 2005, when this customer renewed its truck fleet. This business deal is referred to as ‘the 2005 episode’ and illustrates how the offering is designed in the interaction in the relationship between the two. In this interaction the truck dealer representing VT played an important role (Volvo Truck Center). The data of the episode are based on

interviews with representatives of the two sides and also the documents exchanged between the parties.

Finally, the third research issue is concerned with the mobilization and the role of the supplier network of the provider. The involvement of the suppliers is studied in relation to the offering of Volvo Trucks in general, and also with regard to the 2005 episode. This research issue is based mainly on information from Volvo Trucks, some of which emanates from the major internal suppliers (Volvo Powertrain and Volvo 3P).

The research process of the case study has followed an abductive logic, building on an active interplay between theory and data where the two are systematically related to each other (Alvesson and Sköldberg, 1994). The particular approach applied is ‘systematic combining’ as defined by Dubois and Gadde (2002). According to the authors, systematic combining is a non-linear, path-dependent process based on a continuous exchange and interplay between theory and reality and vice versa. Systematic combining is expressed as “*a process where theoretical framework, empirical fieldwork and case analysis evolve simultaneously and it is particularly useful for development of new theories*” (Dubois and Gadde, 2002:554).

The main elements of the systematic combining approach are illustrated in Figure 3.1.

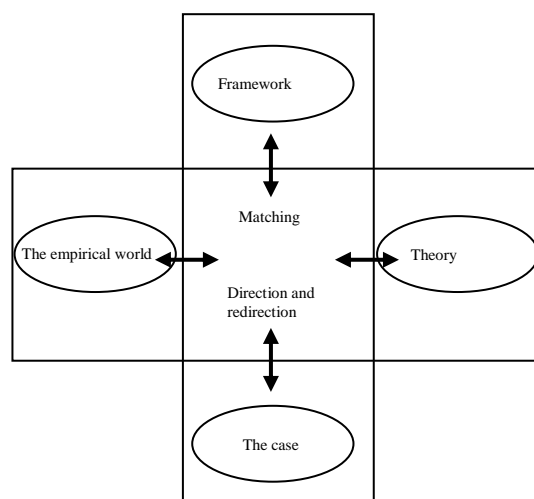


Figure 3.1 Systematic combining (Dubois and Gadde, 2002:555)

Figure 3.1 illustrates that systematic combining involves two types of interplay. One is between the empirical world and the theories about this reality. The other concerns the interplay between the framework of the study and the case description, which both evolve over time. Systematic combining is characterized by two processes that impact on the two types of interplay. The main interest in all research is the confrontation between reality and the models of reality. ‘Matching’ represents the process where data and theory are successively adapted to fit each other. Matching is about going back and forth between the theoretical framework, empirical observations and analysis. This means that what is found in the empirical world might call for refinement of the framework which requires additional theory. In the same way the modified framework may call for additional information about the empirical world. In this way the interplay in systematic combining leads to ‘direction and redirection’ of the study. The call for more empirical information affects the data sources and the information needed.

The characteristics of systematic combining as described above are relevant illustrations of this study in the truck industry. The research process has really been non-linear and gone back and forth. In fact, it can be described as a journey on a bumpy road with many crossroads in a foggy and misty climate without any clear light. During the research process, several redirections were required. One example is that from the beginning the aim of the study was to focus on the needs and problems of the customer and analyze in what ways the offering of the customer contributed to solving these problems. For various reasons the study was redirected to focus on the elements of the offering and how they are combined in specific business deals. This in turn called for a modification of the frame of reference. This redirection pointed out the crucial role of the supplier network of the provider of the offering, which consequently affected both the framework and the case description.

3.2 Data collection

The main source of information is interviews with representatives of the companies involved. A first round of interviews was made in 2003. These initial interviews involved people in Volvo Trucks responsible for sales, marketing and dealer operations and development, and aimed at identifying the basic features of the offering and the context of this offering. A second round of interviews was conducted in 2005 and concerned the business deal with HÅ. The informants in this interview round represented Volvo Trucks (VT), HÅ, Schenker (the

most important customer of HÅ), and one of VT's external suppliers (Gehab), which was engaged in this episode. Between 2006 and 2009 a number of follow-up interviews were undertaken with people from various internal functions of Volvo Trucks and some suppliers within the Volvo Group. All in all 22 interviews were undertaken.

Table 3.1 shows which companies and main functions the interviewees represented.

<i>Firm</i>	<i>Department/Function</i>	<i>Number of interviews</i>	<i>Comments</i>
Volvo Trucks	Top Management	2	
	Strategic Planning	3	(2 persons)
	Product Planning	2	(1 person)
	Finance	1	
	Sales	3	
	Logistics	1	
	Brand Management	1	
Volvo Truck Centre	Head of sales	3	(1 person)
Volvo Powertrain	Purchasing Director	1	
Volvo 3P	Strategic Planning	1	
HÅ	President	1	
Transport Company	Owner	1	
Schenker	Vice President	1	
Gehab	President	1	

Table 3.1 *The companies and the respondents in the study*

Alvesson and Sköldberg (1994) argue that qualitative research needs to be based on a thorough logic for the interaction with the empirical material and to use well established techniques in data collection and analysis. The data collected in the 2005 episode were mainly received through the respondents during the interviews. The informants are employed by VT or are part of their customer and supplier network. Some of the respondents at VT were selected because they have managerial functions of relevance for the company's offering. Others were chosen since they were heavily involved in the 2005 episode with HÅ. There were no problems with access to the informants owing to my position as employed by VT.

The main methodological approach applied in qualitative research is open-ended questions to a small sample of firms (Silverman, 1993). In this study 18 people were interviewed – each one individually. The length of the interviews varied between 20 minutes and one and a half hours. Notes were taken during each interview and a copy of the field notes was written immediately after the interview in order not to lose relevant information addressed during the interview. Some respondents were interviewed several times. For example, the head of sales

at the Volvo Truck Centre was interviewed three times because of the key role he had as Volvo Truck's main coordinator in the 2005 episode.

The qualitative techniques used included in-depth interviewing, elite or expert interviewing, and document analysis (Blumberg et al., 2008). The information collected also includes historical secondary data, such as notes from board meetings, data from interim and annual reports, internet information and other printed material relevant to the research field. The documents providing the background understanding were the annual and interims reports for the period 2003 to 2006. Data concerning the development of the new offering were studied between 2006 and 2009.

3.3 The credibility of the study

In this final section the credibility and trustworthiness of the research are discussed. Any study is subject to several strategic choices concerning methodological issues – all with their particular consequences. Furthermore, many practical problems occur in the data collection processes and the interpretation of data in the analysis phase is tricky. It is therefore important to examine the quality and credibility of the study. In qualitative research Lincoln and Guba (1985) bring up five factors that contribute to the strengthening of the credibility of a study: prolonged engagement, persistent observation, triangulation, peer debriefing and member checking.

Prolonged engagement concerns the opportunity to grasp and understand the complex empirical world. The level of credibility in this respect depends on the time that is spent in this reality. My engagement in the Volvo Group started in 1997. Since then I have held various staff positions at the central level of the company. These experiences have provided a broad understanding of the context of VT's operations including the extensions of the offering and the interaction with customers and suppliers in these processes.

Persistent observation relates to the depth of the research. This study began in 2003 and the data collection spanned a period of six years. Even though the study was conducted through part-time research, the long time period enhances the depth of the research. Moreover, the redirection of the study and the reformulation of the research issues are outcomes of this persistent observation.

Triangulation enables the researcher to cross-check the quality of the information by using multiple data sources. In this study, information from interviews has been compared with official corporate data, minutes from meetings, documents and other secondary data. Of particular importance in this respect was the opportunity to verify respondent information concerning economic conditions and financial figures with corresponding data from reports and other non-personal sources. Furthermore, the information from one interview could be compared with what was revealed in other interviews.

Peer debriefing by presenting findings to peer groups is important in order to enhance credibility. Such feedback is crucial in all the phases of a research process: in the design of the framework, the specification of research issues, the interpretation of data and the formulation of conclusions. Comments and feedback of this type have been received at internal seminars at Chalmers, and international conferences such as the ‘Nordic workshop on inter-organizational research’. Furthermore, discussions at seminars in doctoral courses as well as comments from supervisors are important aspects of peer debriefing.

Member checking is about ensuring the adequacy of empirical observations. Through member checking, respondents are given the possibility to correct potential misunderstandings. Informants were thus asked to go through the notes from the interviews and verify whether the information had been understood by the researcher. The member checks also functioned as a follow-up to the interviews and in some cases the respondent made suggestions concerning other people to interview.

In the following chapters the results and findings of the study are presented. Chapter 4 deals with the elements of the combined offering of VT and the dynamics of the features of the offering. In Chapter 5 the supplier network behind the offering is described and analyzed in terms of the sourcing strategy and the nature of the relationships with suppliers. The business deal between VT and HÅ is the subject of Chapter 6. Chapter 7 is devoted to an analysis of the interaction between the two companies and how this interaction impacted on the features of the trucks that were delivered. Chapter 8 explores the interplay between the features of combined offerings and the nature of the relationships with customers and suppliers. Finally, the main conclusions of the study are summarized in Chapter 9.

4 The Offering and its Elements

This chapter is about the extended offering and its elements. It describes the main building blocks of the offering of the provider. Each building block and its sub-elements are presented on an overall level in section 4.1. The number of sub-elements and their contents may change over time. Accordingly, this section is followed by 4.2 addressing the offering strategy behind the current building blocks and the sub-elements. Finally, section 4.3 brings up potential future changes of the strategy.

4.1 The offering of VT

The offering of Volvo Trucks is based on new heavy-duty trucks and various services around the truck. VT's extended offerings illustrated in Figure 4.1 consists of eight main building blocks.

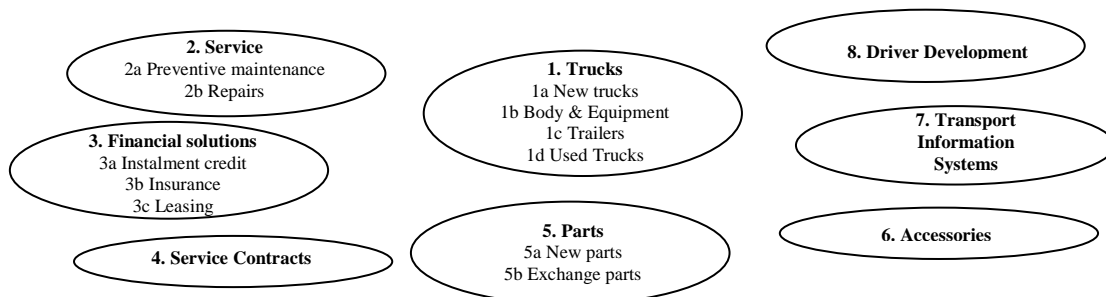


Figure 4.1 The main building blocks of VT's offering

In this section, each building block is presented on an overall level, starting with "Trucks". The focus is on the features of the offering around 2005. However, new product launches and updates after 2005 are addressed in the following text due to the latest year's rapid growth in all the services around the truck (building blocks 2-8).

1 - "Trucks"

This building block refers to the physical products, i.e. the trucks, which are grouped into the following four sub-blocks: a) new trucks, b) body & equipment, c) trailers and d) used trucks.

1a - "New Trucks"

Volvo Trucks are present on all continents, which have resulted in a global product range based on common product architecture. The new truck business (1a) represents about 75% of the total sales. The flagships are the Volvo VT 880, developed for the North American market, the Volvo FH16 and the new generation of trucks, the Volvo FH and Volvo FM models. Growing in importance are the medium-duty trucks, including the VM model for the Brazilian market. The medium-duty volumes, which accounts for about 5% of the total truck volume, are important for the dealers' total product range. The vehicles offered by Volvo Trucks are mainly used within product segments such as demanding long haul, economic long haul, heavy distribution, city distribution and construction. The FH16 and VT880 are developed to secure the demanding long-haul business, while the volume product FH12 covers demanding and economic long haul, and heavy distribution. FM10 and 12 are focusing on construction. Since 2007, the 12 litre engine has been upgraded to a 13 litre engine. In 2008 a new product range was launched, which focused on driver environment, safety and new driveline. In 2010 Volvo Trucks launched a new construction truck, the FMX.

Trucks are also divided into tractors or rigids, where tractors are mainly used for long haul and rigids mainly for construction. A rigid has a firm design with some kind of body, often adapted for construction usage. Volume-wise, a tractor with 4 by 2 wheel combination is the most common variant when transporting goods in Sweden, where two out of four wheels are driven wheels that in general are on the back rear axle. Axles are attached to the chassis at different distances depending on how the truck is going to be used and what body & equipment or trailer will be attached.

In 2004 the Volvo Group defined that soft products comprise everything except new trucks (1a). In accordance with this definition, soft products represent about 25% of total sales. This business is not as volatile as the new trucks operation, because the rolling truck population of about one million Volvo trucks around the world is continuously in need of service and maintenance. This is independently of where truck manufacturers are in the business cycle.

1b - "Body & Equipment"

A truck is used for transporting goods and material. Depending on the transport task, the truck needs to be complemented with a body and equipment that support the goods and material handling.

The body & equipment is adapted to suit each customer, segment and industry, of which the latter aspect is illustrated in Figure 4.2.

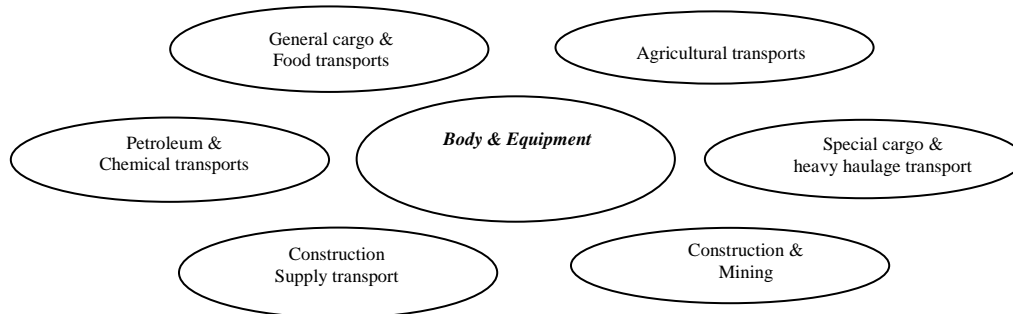


Figure 4.2 *Body & equipment for different usage*

The various forms are offered to the customer through cooperation between Volvo Trucks and its sub-suppliers. An example of a “body” is the swap body, which mainly is used for general cargo. This solution consists of two parts: a platform/van body which can be placed on support legs but, in spite of that, lies low on the body. Under the platform/van body there is a body made of longitudinal and transverse profiles. The swap body has a base with a very firm construction, which has been tested during many years of use. The support legs, due to their construction, are well protected against dirt, snow and ice. The sliding surface is covered with PEHD 1000 (plastic), which means that they do not get stuck on account of stain and are very easy to handle.

1c - "Trailers"

In order to transport large volumes of goods, trailers are used. These trailers are designed for many truck applications as containers, which are easy to reload. Forestry is an example of an industry that uses trailers for heavy haulage. The main effect of using trailers is that the maximum tonnage transported can be increased.

1d - "Used Trucks"

About one third of the new trucks are sold together with some kind of lease or service contract, which means that VT will receive these trucks back into the system as used trucks when the lease contract ends. A lifetime of a truck is about 15 years and will during these years in general have three to four owners. The used truck business is one important part of a

dealer's offerings, since a truck fleet customer buys and sells used trucks. In some markets, VT has established specific used truck companies, such as the Arrows in North America.

2 - "Service"

VT has a truck population of more than a million trucks on the market, which will from time to time need service and repair. This puts a challenge on VT to secure a global workshop capacity, in terms of both available mechanics, work bays and service hours. The workshop capacity is important for growing the workshop hour market share.

2a - "Preventive maintenance"

The ambition for a transportation company is to keep the truck fleet rolling as much as possible. Customers' earnings are dependent on how much their truck fleet is utilized over a truck's life cycle. Preventive maintenance helps the customer to minimize negative product effects like unplanned stops. One action to meet this is to perform diagnostics and tests, and to act according to the results of such a test. Many heavy-duty trucks for long haul usage are utilized 24 hours a day, 7 days a week.

2b - "Repair"

If something happens to a vehicle, VT offers repair activities through its workshops. The aim is to get a truck back on the road as fast as possible. Therefore each workshop facility sets targets on spare parts availability based on the density of trucks around the workshop. The target for parts availability is in general between 95-97%, which means that nearly all components and articles need to be stored at the dealers. The repair business is closely linked to the workshop capacity utilization.

3 - Financial solutions

One way to pay a truck is by cash, another is to lease the truck, and a third is to take a loan. Volvo offers financial solutions, such as loans, through cooperation with Volvo Financial Services (VFS).

3a - Installment credit

When a customer needs to take a loan to buy a truck, this is mainly arranged through Volvo Financial Services (VFS). For some emerging markets, Volvo Trucks works with financing syndicates. The payment terms offered by VFS are roughly as for a credit institute, though

sometimes with some higher interest points depending on the credit risk. When VT sells a vehicle with instalment credit; the truck is leaving the VT balance sheet, though with an impact on the profit and loss account. However, the debt is activated in the balance sheet of VFS, which means that the credit risk remains within the organizational structure of Volvo Group.

3b - Insurance

The Volvo Group operates its insurance business through a captive company called Volvo Group Insurance (VGI). A broker, Willis Group, is used to coordinate the insurance plan with the insurers. This plan focuses on five areas, Business Interruption, Product Liability, Property, Travel, and Vehicle insurance. The insurance solution addressed in Figure 3.1 refers mainly to what can be supplied by the dealer network, which mainly is linked to the vehicle. It is also possible for a truck customer to have insurances for its business operation or different kinds of life insurances for the employees, through a local insurance syndicate. This latter offering is in some markets coordinated by VFS, who works closely with a global network of captive insurance companies.

3c - Leasing

When it is not important for a transport company to own the truck, leasing is one alternative. The customers state in a dialogue with VT what kind of truck offering they need. They agree upon payment terms, such as for how many years they want to lease the truck and the amount to be paid to VT each period (per month etc.) After the contract expires, the truck is returned to VT and becomes part of the used truck business. A difference for VT between offering a lease versus an instalment credit is that when a lease is offered, the truck remains in the books and balance sheet of VT.

4 - Service contracts

If a customer wants to include services in the truck deal, there are several alternatives of service contracts to choose among. In the European system and many of the international markets, these contracts are sorted into the three levels – gold, silver and blue. The gold level covers almost everything that might happen to a truck during the time of the contract. The time frame for a service contract is 4-5 years on average. For the North American market, extended warranty is offered as an alternative to the gold, silver and blue solutions. Extended warranty is more about prolonging the time for the warranty, such as from one to two years,

while the gold levels covers a lot of other areas as well.

5 - Parts

A truck is a result of the combining of many systems, components and parts. If something happens to one of these parts after a truck has been sold, it is either covered by the one-year new vehicle warranty or is possible to buy separately through the dealer or workshop network. So-called "pirate" suppliers are continuously pushing prices in order to gain customers. Some of the VT service contracts like gold cover parts during the time frame of a contract and increase the customer loyalty to use parts from Volvo.

5a - New parts

If a specific part breaks, it often needs to be replaced as soon as possible. Therefore the availability of new parts at a dealer is important for a customer. Securing 100% parts availability builds inventories and costs. VT focuses on 100% availability of the most frequently used parts, with a general level of 95-97% within 24 hours. The number of total parts used in a new truck is in the range of 25,000-40,000 depending on truck application. What is expressed under 5a is when the customer just buys the new part and is making the exchange itself, or this could be done at the workshops.

5b - Exchange parts

Small and mid-sized companies often buy service and support, while larger transportation companies sometimes build up their own internal workshops. Exchange parts concern when VT through its workshops is offering exchange parts when required.

6 - Accessories

Accessories include a variety of items such as suitable clothes, sun-glasses, CD with "trucker" music or a DVD with an interesting movie to watch before going to sleep.

7 - Traffic Information Systems

The increased competition drives transport companies to continuously improve the efficiency of goods handling. One way to accomplish this is to use information about the vehicle and driver. This may be achieved by using a Traffic Information Systems (TIS). One product offered by VT is Dynafleet on-line. This product logs data regarding how a driver is utilizing the vehicle. When he/she is driving, data are logged about the goods capacity of the vehicle

and information about reloading. It is also possible to receive traffic data through internet regarding requested maps and if there are any road accidents or on-going on-road work that might delay the transport when using a specific route. If so, it is possible to schedule additional routes.

8 - Driver development

The level of motivation and skills of a driver affects the quality of how transport assignments are fulfilled. Accordingly, it is important to continuously develop the driver's ability and the driver environment. One way is by offering driver training. Examples of specific driver training offerings are Fuel Watch and Speed Watch.

All the eight building blocks that have been presented can be bought separately after or together with the new truck sales.

4.2 Extended offering strategy

The Volvo Group stated at the Group Executive Council meeting in 2005 that the long-term ambition was to grow the soft products' share to become about 50% of total sales. In the long term, this statement impacted the business context of all Business Areas and Units within the Volvo Group. Even though current activities and resources are supporting this ambition, the 50% ambition emphasizes that additional activities and resources need to be allocated.

The overall business strategy of Volvo Trucks is based on three so-called cornerstones: profitable growth, product cycle management and operational excellence. Profitable growth is about the ability to manage the business cycles and compete on a global scale. Product cycle management focuses on product renewal with timely introductions of new products and services, which are adding value for customers. Focus is on customer-oriented offerings that include innovative solutions for future needs. Operational excellence is about best practices and tools that improve effectiveness and productivity. It covers areas like Finance, Human Resources and Quality and Technical Support.

VT competes mainly in the heavy-duty markets of above 16 tonnes, which accounts for 95% of total volumes. The medium-duty business is relatively small complementary dealer business with an offering above 7.5 tonnes. Hence, Volvo Group has a full product range of heavy, medium and light trucks. The truck brand portfolio consists of brands like Volvo, Mack, Renault, UD (Nissan) and Eicher. The image and price position is closely connected to the product image position. VT is positioning the brand as a premium brand for customers with image, technology and modern professional behaviour. VT takes a social responsibility in many aspects, where care for the environment is one example. The alternative-fuel strategy includes the use of diesel technology, focusing on biodiesel and methane (natural gas and biogas). The hybrid strategy aims at being perceived as the leader in hybrid technology for heavy trucks.

To remain a leading truck supplier, it is vital to focus on total customer solutions. VT strives to address different levels of demand with distinctly developed product range. This physical range of products is complemented with a high variety of services and extended offerings, referred to as soft products. A large part of the soft product revenue comes from parts & service sales. An important issue is to keep the customer loyal during the life cycle of the product. Focus is to support the customer to have the truck rolling 24 hours, 7 days a week. Uptime services become in this respect critical and include the whole value chain. VT measures the profitability by Life Cycle Earnings (LCE). The retail strategy was reviewed in 2004 in order to further strengthen the distribution network and the competences required. A retail organization was established in order to grow the soft product area and to really become a customer-oriented company. One way to achieve this is to focus on the customer touch points, specifically the customer support needed in the key touch points. VT argues that this is easier to achieve when owning strategically located dealers and workshops. The prerequisites for a strategic location are that the location needs to be a logistic hub or having a large rolling truck population close by.

One of the results of the retail strategy is how the share of soft product sales has developed. This is illustrated in Table 4.1.

Share of soft products	2006	2007	2008	2009	2010
Used vehicles	22%	22%	21%	23%	
Parts	64%	62%	62%	60%	
Workshop services	11%	11%	11%	10%	
Other	3%	5%	6%	7%	
Total soft products	100%	100%	100%	100%	
Share of total sales	25%	26%	25%	41%	36%

Table 4.1 *The soft products' share of total sales*

During the last decade the soft products share of total sales has been at the level of 20-25%. The rapid increase of the soft product share of total sales 2009 is mainly due to the business climate and the decrease in GDP. This led to a decrease in demand for new trucks, while the demand for services and parts was stable. As shown in Table 4.1, the bulk element of soft products is the parts business, which accounts for almost two thirds of the volume. This is also the business situation among the competitors in the truck industry. Between 2006 and 2009 the parts business share has decreased by 4 percentage points. Even though the relative weight for the parts business has decreased, it is still by far the most important soft product area. Notable is that "other" business such as training, information systems etc. has increased rapidly from 3% in 2006 to 7% in 2009. This development of extended offerings is predicted by VT to continue.

4.3 Future changes of the offering

During the last couple of decades the truck industry, including Volvo Trucks, has made a gradual transition from supplying trucks to supplying total solutions. The number of product variants available for the customers to choose among has increased. As argued in section 4.2, there has been a shift towards a larger share of soft products. The tendency is that this trend will continue. VT claims that there are several aspects to evaluate before making a fast change towards a widening of the product offering. For example, it is important to have people with

competence in selling, marketing and packaging extended product offering elements into total solutions. Leadership and competence issues are essential and can limit the expansion.

Figure 4.3 illustrates four facts that are perceived as by VT important for further extension. It is the interplay between the four that will affect the future changes of the offering.

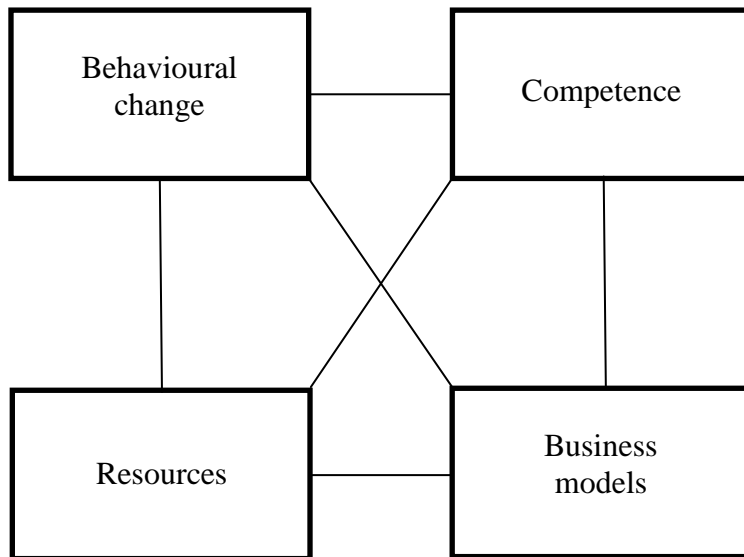


Figure 4.3 Drivers for changing the offering

Behavioural change

This is about the shift to develop and sell total solutions instead of a focal product. The shift requires changing behaviour from all stakeholders, where the customers, the dealers, the suppliers and the employees at VT are the key actors.

Competence

The competence of selling and marketing total solutions needs to be secured. This creates a service and software focus, including time to market.

Resources

Extending the product offerings affects the budget allocations. Due to the shorter life cycle, soft products are often taken as Selling & Administrative costs instead of Research and Development costs. Notable is that the Standard Cost of Sales of the product/service itself is accounted as Selling & Administrative costs.

Business models

The overall business models are impacted by the shift towards total solutions. This includes customer support and need to secure the increasing sales of trucks, parts and workshop hours. All new offers need as a minimum to carry their own costs.

When it comes to selling soft products, Volvo has divided them into 3 categories, which are presented in Table 4.2:

Soft Products								
<i>Aftermarket products</i>				<i>Extended Product Offerings</i>	<i>Service Offering</i>			
<i>Spare parts</i>	<i>Software</i>	<i>Accessories</i>	<i>Service products</i>	<i>Extended product offering</i>	<i>Uptime services</i>	<i>Fleet / Transport services</i>	<i>Support services</i>	<i>Financial services</i>
New parts	Vehicle software	Accessories	Service literature	Used vehicles	Service planning	Transport management	Competence development	Dealer financing
Used and remanufactured parts		Non-Volvo accessories	Service / dealer tools	Trailers and super-structures	Maintenance and repair	Driver time management	Fleet and asset management	Customer financing
Extended parts		Merchandise products	Parts services	Attachments and options	Updates & upgrades	Vehicle management	Call center services Rental	
				Special vehicles	Service contracts	Security, safety & environment	Consultancy services	Insurance
					Extended coverage	Driver info & support	Information services	Card and payment solutions

Table 4.2 *Soft product categories*

The offering elements that are part of Table 4.2 show that a total offering may include a variety of different elements. The Volvo Group has structured the elements in three categories due to internal requirements on how to handle the respective category.

It is critical that resources are allocated for safeguarding future competitiveness and to secure roll-out and implementation of new service concepts. Identifying new service areas is important in order to increase brand differentiation. If this will be the fact in the future, all stakeholders need to strive towards a service-oriented mind-set and competence.

Figure 4.4 illustrates how VT can broaden the total offering to include new soft product elements. It also shows how Volvo Trucks values the business potential for each element, which is illustrated through the size of the box for each element. Even though fuel has large potential, it is evaluated as a soft offering element that is not in line with the soft product strategy to offer from a truck manufacturer.

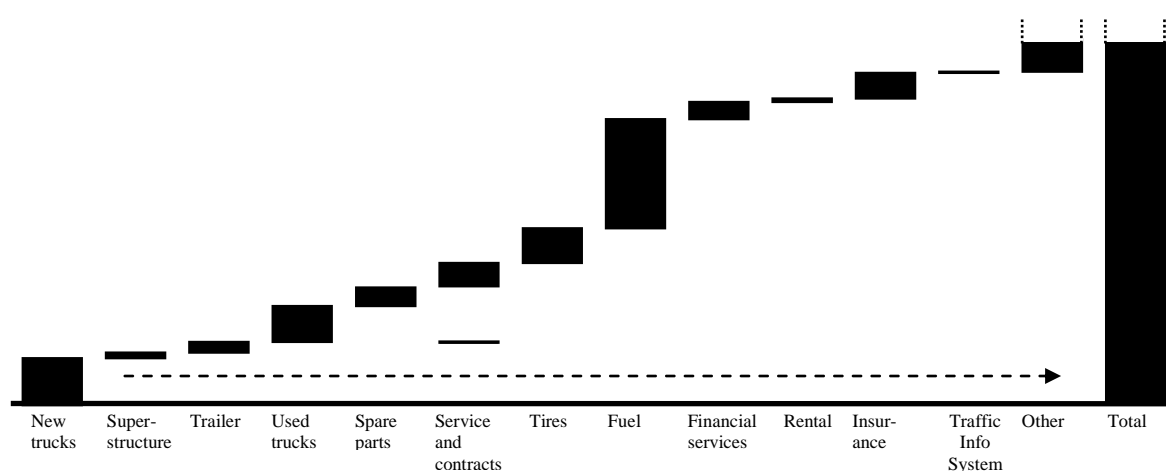


Figure 4.4 The values of the various offering elements

The element defined as “other” expresses the further business potential of extended offerings, which has been the subject of several internal workshops at VT. The discussions have covered a variety of extended elements, such as drivers, entertainment, food, lodging etc. According to VT, extended elements are mainly developed locally within the commercial organization, though in many cases in partnership with external suppliers.

A large share of VT’s total revenues is expected to continue to come from parts and service sales. Parts and services are important for many reasons. Most of all, parts and services ensure a continuing interaction with the customer throughout the ownership of a truck. For some customers, this interaction will continue over the lifecycle of a truck. The service and parts business is also an important contributor to the profitability of VT. It is therefore vital to protect and secure the service and parts business through the whole value chain. This is communicated within VT in terms of Life Cycle Earnings (LCE) and included in programs like “*designed for aftermarket*”.

An offering that is extended outside the service and parts business will create more customer nodes and occasions to meet the customers and to create business relationships. It will also

contribute to growing VT as a service company. VT addresses many challenges with this shift. One is to be able to sell and deliver a total solution package through one sales channel. For most markets there is today one sales channel for new trucks and at least one more for the service and parts business. VT states that a combined channel approach will strengthen the distribution network. It also claims that this will support the competence build-up for the delivery of total solutions. Besides extending the offering, VT has increased the focus on supporting customers in their daily operational challenges in order to be perceived as a strong and reliable business partner. According to the retail organization at VT, the main reasons for broadening the offerings are to create new revenue streams and to improve the product penetration. Another main driver is the ambition to create close and long-term bonds with the customers.

Each new generation of product offerings tends to be improved, compared to the previous generation. This has an impact on the network of suppliers, who continuously need to follow the customer development and to strive to develop their contribution further. The supplier network of VT is described in Chapter 5.

5 The Network of Suppliers

The combining of customized offerings requires a network of capable suppliers. Most of the components and systems of a truck are produced by internal and external suppliers of the provider responsible for assembly. Measured in value, the share of external suppliers account for about 60% of the total value sourced. Each supplier provides its specific contribution to the total offering. Truck assemblers, like VT, evaluate what sub-suppliers to use and it is crucial that the most appropriate business partners are selected.

In the company's network of suppliers, some of the firms are relatively more important than others in terms of volume and business value. Even though all suppliers are important for the features of the total offering, some are defined by the purchasing department as main or critical suppliers. The main suppliers are generally those who deliver systems and components that are important for securing brand-specific features.

This chapter starts with a description of the main drivers of the development of the current network. This process, involving several strategic changes, is outlined in 5.1. In 5.2 the transformation of purchasing within one of the internal suppliers of VT is presented. The basic characteristics of the existing supplier network are then discussed in 5.3. Finally in 5.4 the purchasing strategy of VT and the criteria for selecting suppliers are outlined.

5.1 The development of the supplier network

The supplier network of the Volvo Group has gone through three important changes during the last decade. The first was an effect of the divestment of Volvo Cars in 1999. Up to this time, the supplier network of the Volvo Group included suppliers for cars, trucks and heavy equipment. In 1999, the suppliers of Volvo Cars followed Volvo Cars into the new supplier structure of the Ford family.

Even though some vendors supplied to both passenger cars (i.e. Volvo Cars) and to commercial vehicles (i.e. Volvo Trucks, Volvo CE etc.), a large number of suppliers and the competence of handling car suppliers were transferred outside the structure of the Volvo

Group. Because volumes are significantly higher in the car business compared to the commercial business, Volvo Group lost economies of scale in the negotiations with some of the dual suppliers.

Another decision made in the mid-1990s by the Volvo Group was to initiate a change of the supply strategy from a multiple sourcing approach towards a single supplier/sourcing strategy. This decision affected nearly all components, with some exceptions for suppliers of strategic components, where alternative suppliers remained. For those components the multiple sourcing strategy was still used. A consequence of the transformation to a single sourcing/supplier strategy was that the overall dependence on suppliers increased. The background to this decision to change strategy was the aim to increase the economies of scale in order to gain on cost and to reduce the number of contact nodes. This also led to higher dependence and risk exposure. For example, some of the suppliers were located in areas with high political instability.

The third important driver for changing the supplier structure appeared when the Volvo Group decided to acquire Renault Trucks and Mack Trucks in 2001/2002. The business logic of creating economies of scale in purchasing focused on offering suppliers larger volumes. This was achieved through some organizational changes including the establishment of two new internal business units: Volvo 3P and Volvo Powertrain. Volvo 3P was given the responsibility for product planning, product development and purchasing for all the three truck brands within the Volvo Group. Volvo Powertrain was made responsible for coordinating all driveline issues, which included product development and production of engines and gearboxes for all the brands. The overall responsibility for handling the supplier network was given to Volvo 3P. Accordingly, Volvo Trucks was reorganized to become a commercial brand structured organization. As a result of the reorganization Volvo Trucks became an internal customer to both Volvo 3P and Volvo Powertrain. To ensure that important brand aspects for Volvo Trucks were considered, an internal department called product strategy and planning was established. This department was supposed to define the Volvo Trucks product requests.

All the three above changes affected the supplier structure considerably, but our main interest is directed to the latest reorganization associated with the acquisition of Renault Trucks and

Mack Trucks. Below, we describe how the changing purchasing strategy was implemented in Volvo Powertrain.

5.2 The restructuring of VP's supplier network

After the merger of the three truck manufacturers, the supplier network of Volvo Powertrain's (VP) purchasing organization consisted of three different supplier bases including more than one thousand vendors. Furthermore, each of three business units worked with its specific purchasing process. These conditions made it difficult to benefit from the fact that Volvo Trucks was the largest buyer in the world in its specific product range. Exploitation of these potential economies of scale thus required a transformation of the purchasing operations. In particular, synergies were expected from a reduction in the number of suppliers, which would decrease the costs of handling supplier relationships and make possible a unified approach for the three brands in terms of shared manufacturing technologies and common product architectures.

Before the reorientation, most supplier relationships were characterized by arm's-length conditions. A main objective with the transformation was to change these features and make Volvo Powertrain (VP) a preferred customer in order to be able to better exploit the resources of suppliers. The first steps towards these conditions, building on single sourcing, had been taken and a further emphasis of this approach included increasing contract lengths and earlier involvement of suppliers in product development. VP expressed the main objectives with the reorientation in three dimensions: single sourcing, increasing involvement and a global supplier base. In turn, this required centralization of purchasing since the three business units worked with different supplier bases and separate purchasing processes. Extensive negotiations were therefore required between the central purchasing organization and the business units in the process of deciding which supplier relationships to maintain and which to terminate.

During the process, the focus of the operations on the supply side was modified from attention to price and low costs towards considering how potential vendors could contribute to the value of the offering of VT. VP therefore searched for business partners with capabilities to innovate that were interested in considering them as a preferred customer to share technology with. Suppliers also had to work on global scale as well as being able to supply locally.

Furthermore, an open dialogue was required with transparency in terms of current costs and future strategies. An important step in this process was to establish cross-functional teams including people from various internal functions and supplier representatives. Moreover, a partnership programme was launched in order to ensure joint activities and schedules for dealing with quality concerns and environmental issues.

Through these efforts the number of suppliers was continually reduced, while the involvement with those remaining was enhanced through the various collaborative arrangements. The suppliers appointed had to share the core values of VT in terms of environmental care and superior quality. Other crucial criteria concerned ability to live up to VT's safety requirements, information technology system status, short development times and reliable delivery, since all these factors are highly significant for the offering of VT. A lot of demands were thus placed on a potential preferred supplier. On the other hand a preferred supplier could benefit from the opportunities of being a single-sourced supplier, because of the large scale of the operations and the long-term collaborative approach.

The tough objective of reducing the number of suppliers by 90% was attained in 2007. At the time the supplier base consisted of one hundred vendors who supplied almost all systems, components and materials. Another goal with the transformation concerned the huge variety of parts and part numbers. The reduction from 14,000 to 5,000 considerably impacted on the costs of supply. This first step of the transformation of purchasing concerned the relationships with individual suppliers. The second step initiated was to encourage cooperation between suppliers, which would further improve the conditions on the supply side. Among these arrangements can be mentioned involvement of several suppliers in the cross-functional teams and joint vendor responsibility for supply of systems and modules.

The ultimate goal of these efforts is to establish a network with strong connections in the team of suppliers behind VT's customized offerings.

5.3 The features of the existing network of suppliers

Volvo 3P is an internal organization within the Volvo Group, responsible for purchasing, product planning and product development. The organization is supporting 4 brands and has 4,000 employees, whereof about 600 are working with purchasing. The Volvo 3P mission is

“to propose and develop profitable products to ensure a strong competitive offer for each truck company based on common vehicle architecture and shared technology”. According to 3P this is based on modularized vehicles with standardized interfaces.

The Volvo 3P purchasing organization principle is illustrated in Figure 5.1.

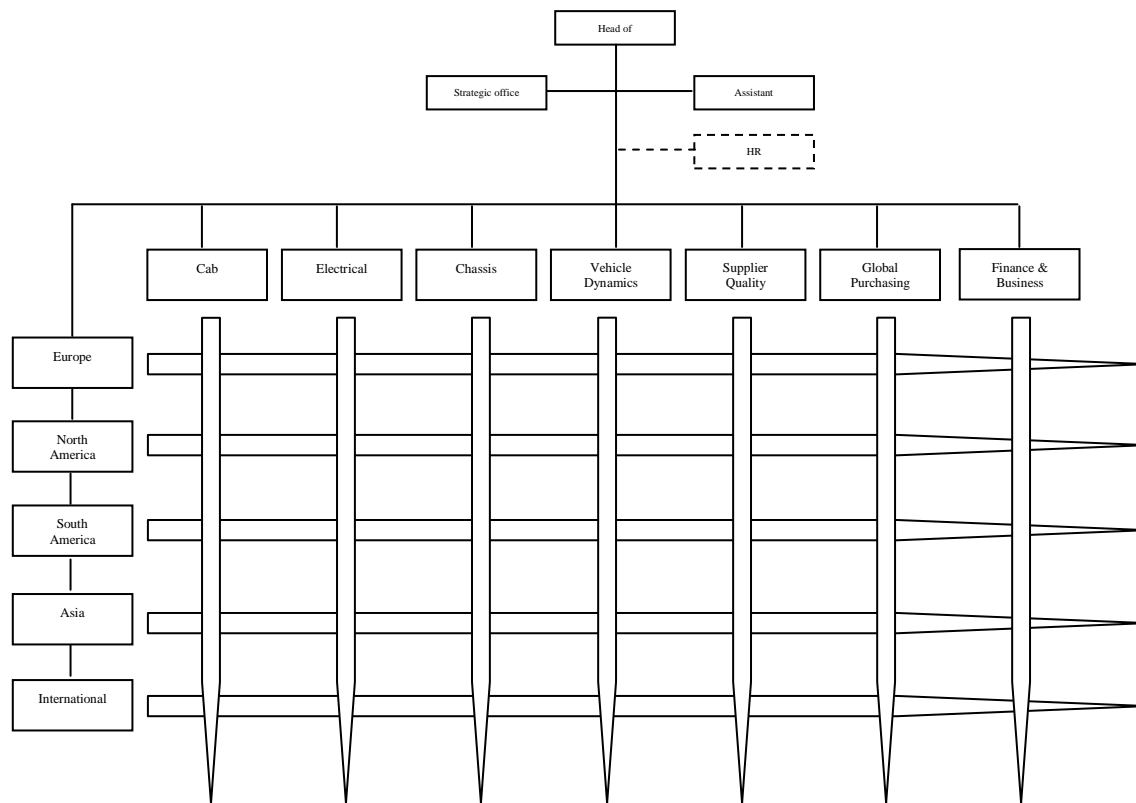


Figure 5.1 Volvo 3P purchasing organization

Purchasing is organized according to a matrix structure, where the main systems of components, systems and support represent one functional responsibility divider and geographical responsibility is the other.

The sourcing strategy of Volvo 3P, which is presented in detail in section 5.4, is based on a preferred supplier approach. This means that when a certain component is needed, a preferred supplier for this component is automatically activated. So when a truck is to be assembled at a production site, these preferred suppliers receive information about at what node in the production flow their components are to be distributed and assembled. The components are delivered to the production flow according to the just-in-time concept. Notable is that some of these preferred suppliers are so-called systems suppliers, responsible for coordinating a

variety of components. Many of these system suppliers are very important for ensuring the quality and functionality of the product offering. These suppliers are defined by Volvo Trucks as main premium suppliers. These suppliers are important for ensuring the critical product features, which need to be delivered according to set time schedule. The frequency of interactions between the sourcing organization and the system suppliers is higher compared to a small sub-supplier of a specific component. However, it is not the time allocated for interaction that is the most important aspect, it is the quality of the supplier information.

The network of suppliers consists of several levels, expressed as tier 1, tier 2, etc. According to Volvo Trucks, the competence and continuity plans are often including the tier 2 level, while the lower levels are to be covered from the respective pre-supplier level.

Figure 5.2 illustrates the competence and continuity border between tier 2 and tier 3.

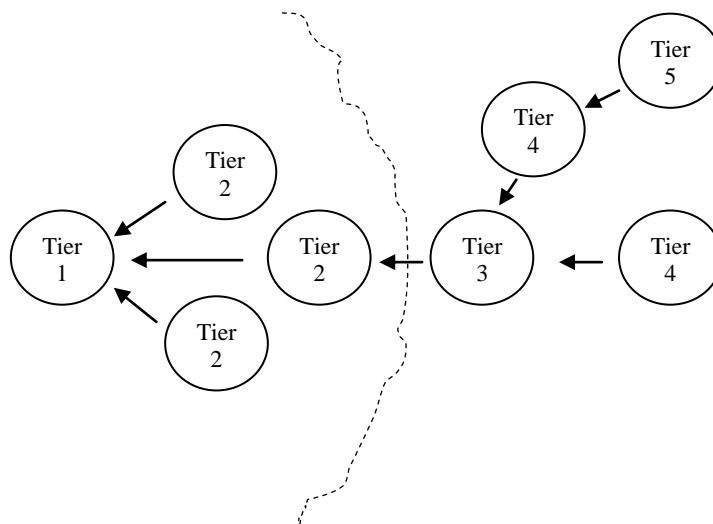


Figure 5.2 *The competence and continuity border*

Examples of important internal system suppliers of Volvo 3P are:

- Volvo Powertrain, an internal supplier within the Volvo Group who coordinates the total driveline. Their most important production sites are the engine plant in Skövde and the gear box plant in Köping.
- Volvo Financial Services coordinates the financial and insurance solutions. This is especially important on markets where customers do not have as broad financial banking solutions, compared to mature markets.

- Volvo Trucks Tuve produces the frames for all plants within Volvo Trucks European manufacturing, i.e. Tuve/Sweden, Ghent/Belgium and Kaluga/Russia.

Examples of important external suppliers for specific components are:

- SSAB, who among others supplies steel to the frames to the truck chassis, which for Europe and Asia are produced at the Volvo Trucks production site at Tuve in Göteborg.
- Sadef, who together with Volvo Trucks Tuve produces frames to the Ghent plant in Belgium.
- Arwin-Meritor, who supply the rear axles. This has proven to be a critical component, because Volvo Trucks has experienced production capacity restrictions during volume ramp-up. This has been handled in close interaction with Arwin-Meritor and its production site in Lindesberg/Sweden.
- Bosch Group, a leading global supplier of technology and services in the areas of automotive and industrial technology, consumer goods, and building technology.

The total number of suppliers and suppliers related to VT amounts to more than 4,000 suppliers, whereof most are small sub-suppliers of one or few components. However, due to the single supplier/sourcing strategy all are important for assembling the total product offering. There are also some consequences of single sourcing to pay attention to. The sourcing strategy may lead to long lead time and extended logistical chains with several levels of sub-suppliers. Some of these suppliers may be located in countries with high political instability. Overall, the supply of raw material needs to be ensured.

Since 2001/2002, Volvo Group and its purchasing organization within Volvo 3P have several brands to handle. The Volvo Group brand strategy is built upon common components and at the same time differentiated features so that some of the components are brand-unique. At the same time there are financial ambitions to reduce costs, which are managed through offering suppliers large volumes to improve on economy of scale. One effect is that the sourcing organization needs to define a huge number of standard components that can be used for all brands. In a cost perspective, there is a cost gain to have high commonality in components. However, it is crucial for the total portfolio that some systems and components are brand-unique in order to be able to differentiate the brands towards the customers. In this respect,

the brand strategy defines how to differentiate in order to be clear and consistent in what each brand represents.

The Volvo Group's governance structure is based on a decentralized approach where most decisions are taken in the markets close to the customers. This is also a guiding device for the purchasing organization at Volvo 3P that needs to think global and act local. The global strategy is also reflected in the supplier and employee base. However, the supplier base is overweighted towards the industrial countries, and especially so in Europe. The supplier approach is, according to Volvo 3P Purchasing, to select the best suppliers based on their performances and to develop strong and structured relationships. The selected suppliers become accordingly the preferred suppliers.

VT has a global strategy, which impacts on the supplier network. One is that due to import duties and other market restrictions, each production plant at VT relies to a large extent on its own local supplier structure. The local network is affected by the criteria for local contents that are stated for each market. One aspect is that local supplier contacts often lead to strong bonds, which determine who is activated for supplying specific components or systems. However, many of the larger suppliers are also global suppliers to VT. These global suppliers also have local business, so they are encountered within the frame of required local content levels.

VT operated, in 2011, a total of 16 production sites globally, some being fully owned and some partly owned. Five of these sites, Ghent/Belgium, Tuve/Sweden, Umeå/Sweden, New River Valley/USA and Curitiba/Brazil, account for about 90% of the total production volumes and are fully owned. It is around these production sites that the major part of the supplier network is located.

The supply characteristics of the production on the three continents are described in Table 5.1 (as of November 2009):

Production site: USA – New River Valley

Geographical base of suppliers	Value as percentage	Number of suppliers	Number of parts
Brazil/Mexico	2%	10	67
Europe	10%	144	778
USA	87%	286	6591
Asia	<1%	4	20

Production site: Europe – Ghent, Tuve, Umeå

Geographical base of suppliers	Value as percentage	Number of suppliers	Number of parts
Brazil	1%	10	51
Europe	98%	845	10986
USA	<1%	20	15
Asia	<1%	11	60

Production site: Brazil – Curitiba

Geographical base of suppliers	Value as percentage	Number of suppliers	Number of parts
Brazil	69%	101	2158
Europe	30%	358	2479
USA	<1%	7	15
Asia	<1%	7	12

Table 5.1 *The geographical base of suppliers and their deliveries*

The figures in the tables show that the majority of suppliers utilized at each production site is from the same continent and even from the same country as the production site is located.

One explanation concerns logistical reasons, and another governmental and political demand for a certain level of local contents. Looking at the mix of markets from where the suppliers are descended, Asia is underweighted. Even though there is a high degree of local content at each production site, the mix between the main production sites differs from 98% locally in Europe to 69% in Brazil. Suppliers from Europe are supplying all main production sites.

The number of suppliers varies between the main production sites. European Manufacturing has close to 900 suppliers, while North America and Brazil have about half that level. One explanation is that the volume in Europe is much higher than for the other continents. This leads also to a larger number of components in Europe, though it varies quite much between the continents. Europe Manufacturing uses about 11,000 components compared to close to 5,000 for Brazil and more than 7,000 for the USA. One explanation for the higher number in the USA compared to Brazil is the customer pattern. The customers in North America tend to a larger extent than for other markets to choose more customer-specific solutions than other markets that base their offerings more on a standardized base offering. There has been a historical pattern among truck customers in the USA to combine their own product offering: “I want the engine from that supplier, the gearbox from that, and so on”. This has led to a lower profitability for the manufacturers that have stressed the industry to find more efficient solutions and product concepts.

In the next section the purchasing strategy is presented.

5.4 The cornerstones of the purchasing strategy

The Volvo Group is a global company with a global strategy, which affects the purchasing organization within Volvo 3P and its purchasing strategy. According to Volvo 3P management, purchasing is a global organization that drives towards common processes, methodologies and ways of working across sites and teams. Focus is on working cross-functional for all brands and to use good ideas and efficient solutions across continents and organizations.

The supplier strategy within Volvo 3P is defined as a premium supplier strategy. It is based on eight cornerstones defined in communication programs with suppliers. These cornerstones are summarized below:

Building strong relationships

The strong relationship between Volvo and premium suppliers is based on positive and creative collaboration. A premium supplier proactively foresees opportunities in the business cycle, anticipates customer demands, proposes innovative solutions and manages its supply chain.

Quality

Customer satisfaction is the foundation of Volvo 3P's operations and quality is a prerequisite for customer satisfaction. A premium supplier develops a Zero Defects Attitude, with high-quality parts delivered on time, rigorous adherence to approved processes and requirements (supplier quality assurance manual) as well as proactive and professional risk management. Quality performance is not limited to kilometres, but embraces the part life cycle with focus on the part's reliability and durability performance.

Safety

Volvo products are characterized by their safety levels. To maintain Volvo's leading position as producer of the safest transport solutions, premium suppliers should deliver robustly designed and produced products that ensure zero safety defects. A premium supplier achieves these results by developing a strong safety management system.

Deliveries

A premium supplier uses a world-class material planning and management system which ensures that parts and components are delivered to Volvo in a timely manner. It has full knowledge of, respect for, and commitment to the Volvo Logistics policy.

Environment

Environmental consideration is a corporate value for the Volvo Group. Volvo actively contributes to reducing the environmental impact of present and future products. A premium supplier actively contributes to sustainable development, including energy efficiency and greenhouse-gas emissions reductions.

Corporate social responsibility

The Volvo Group conducts business with integrity in accordance with its Code of Conduct and the laws and regulations governing its activities and expects the same from the suppliers. A premium supplier complies with laws and regulations of the countries in which it operates and has a clear policy and activities to improve and manage the environmental and social performance of its complete supply chain.

Cost

A premium supplier is competitive in cost and actively drives productivity and cost innovation. A premium supplier will share a full cost breakdown with Volvo and work actively with Volvo to reduce costs. A premium supplier has sound control of its finances to ensure long-term profitability.

Projects

Volvo 3P's main activity is to develop new products for the truck brands. A premium supplier has a strong focus on delivering quality, delivery, cost, and features commitments and is at the frontline of development lead time, innovation and competence within its business area.

By enhancing these eight cornerstones of the purchasing strategy VT strives to be perceived as a leading premium brand. Accordingly, Volvo 3P's purchasing strategy is focusing on premium suppliers, which support the Volvo Trucks brand strategy. The strategic ambitions that the premium supplier strategy is supposed to ensure are based on five main driving forces, expressed in the following way:

Strongly support the Trucks brands' growth objectives

This shows that purchasing is fully committed to supporting the brands achieving their growth objectives. Purchasing is deeply involved in the project process to select the best suppliers and to integrate them within the project. They work closely with premium suppliers to offer solutions to the truck brands in order to safeguard their competitive advantage. They will support the geographic expansion of the brands by building a strong reliable supplier base for local and global products.

Focus on supplier performance

The skills and the capabilities of the supplier base is one of the purchasing assets that must be developed in line with the purchasing strategy.

More business with fewer suppliers

The awarding of the business is the most important decision. Purchasing cannot make any concessions when it comes to selecting suppliers. Purchasing must select suppliers that share our values, perform in terms of quality, safety, delivery, cost, and feature, and are able to work with us as partners. More and more we will buy complete modules, which means that our suppliers will also have to develop and manage their own supplier base.

Build strong relationships with world-class suppliers

Having selected the best suppliers, Purchasing will build strong relationships with them in order to drive the growth and profitability we both expect.

Drive efficiency to operational excellence

This force is dedicated to our own organization and, especially to the people within purchasing, it is one main asset.

These five driving forces are the foundation for the purchasing strategy. In order to be able to fulfil the strategy a number of performance key measurements related to suppliers have been set up. Volvo 3P has stated several detailed criteria that suppliers who would like to become premium suppliers for the Volvo Group need to fulfil. Most of the requirements are linked to the core values of VT: quality, safety and environmental care. The suppliers need to work with a minimum low level of faults and to comply with the quality assurance manual and technical standards. They need to have a solid financial base, high delivery precision, and adherence to corporate social responsibility.

Moreover, it is important for a supplier to fulfil project commitments, purchase and warranty agreements. Suppliers that fulfil the stated criteria and key measurements are approved as premium suppliers for the Volvo Group. As a result, the supplier will be activated when a customer orders a truck with components and systems sourced from this preferred supplier. Volvo 3P has established a specific unit within purchasing responsible for supplier criteria follow-up.

Volvo Group changed its organizational structure as of January 1, 2012. The truck sales operation was divided into 3 commercial regions. The production of trucks was gathered under a production organization, Group Trucks Operations, and the development and purchasing under Group Trucks Technology

Even though many offerings are standard offerings suited to fit general customer requests, the combining of the elements is to some extent customized. Accordingly, the next chapter is concerned with a customized offering.

6 A Customized Offering

In the previous chapters, the offering with its elements, and the network of suppliers in general, were presented. Chapter 6 is about the specific product offering and network of suppliers that were part of the 2005 episode. The chapter begins in 6.1 with a presentation of the customer in the 2005 episode – HÅ. Since this company has been one of VT's customers for a long time, some main features of this business relationship are discussed in 6.2. Section 6.3 describes the business process in the 2005 episode. The outcome of this process was the customized offering developed by VT which is presented in section 6.4. In the final section 6.5, the most important sub-suppliers involved in the business deal are described.

6.1 The Customer – HÅ

The 2005 episode focuses on a specific truck deal made in a specific business relationship. The focal relation was with a small/midsized transportation and logistics firm named HÅ. This company is located in Sweden and was founded in 1994. The firm transports goods, normally by road, mainly for regional and long distance by using heavy-duty trucks. The business is concentrated to three transport routes in Sweden (see Figure 6.1). The main route is between Stockholm and Göteborg, which accounts for about 80% of the HÅ total sales.

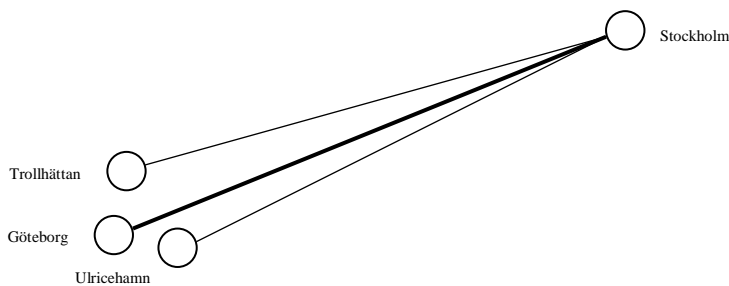


Figure 6.1 *The transport routes of the customer HÅ*

The transport assignments are mainly general cargo and food transport, and to some extent special cargo and heavy haulage transports. The business is structured around one customer, the Schenker Group, who represents more than 80% of all transport assignments. Accordingly, the dependence on one customer is very strong. The main requirements that

Schenker sets on HÅ are to deliver the goods in time and that they ensure the quality of the goods that is transported. If this is not done according to agreed plan and principles, cost penalties are to be paid by HÅ. To be able to fulfil these requirements, HÅ has implemented the principles of “just-in-time” and “high flexibility”.

During the years, HÅ has built up a fleet of about 40-50 trucks, where most trucks are used for long haul and heavy distribution. About 95% of the truck fleet consists of trucks manufactured by VT. This concentration to Volvo trucks reflects the fact that HÅ has high brand loyalty and that the relationship to VT is strong and has been on-going since HÅ was established.

The truck fleet is continuously undergoing service and repair to uphold the required quality level. About two to five trucks are replaced each year. According to the sales manager at VT, the HÅ sales to order processes have been rather informal over the years. All important decisions have been made by the president at HÅ and the amount of written documents has been limited. The number of replaced trucks per year has been rather stable, which has made it easier for Volvo Trucks’ dealer to plan and schedule the upcoming need for new trucks. HÅ has since the start been growing and the company had at the time a sales level of about 100 MSEK per year. The shareholders of HÅ have over time increased their demand for profitability. One example was in 2004 when the main shareholders AF AB and TM AB increased the operating margin objective by several percentage points.

6.2 Previous business in the relationship

The business relationship between VT and HÅ has been on-going since HÅ was founded in 1994. HÅ has since the start been a loyal customer to VT and has each year contacted the VT dealer to purchase new trucks. The sales process has mainly been conducted as an open and informal dialogue led by the president of HÅ. Figure 6.2 illustrates that the sales dialogue was limited to a small number of individuals at each firm, where the focal sales dialogue has been between the president at the customer and the sales manager at the supplier.

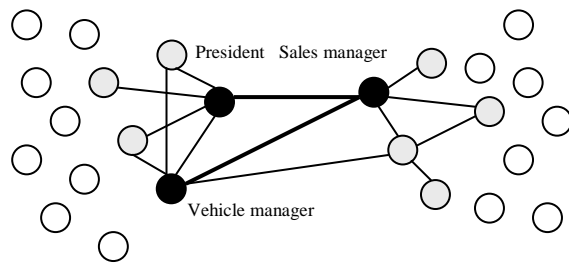


Figure 6.2 *Customer-provider interaction*

Both the president at HÅ and the VT sales manager estimated that up to 5 employees at each firm on average have been activated for each deal that they have made in the past. Because HÅ to a large extent operates in Sweden, it is important to have access to the high density of workshops and that these workshops are located in connection to the main transport routes of HÅ. Much of the interaction between individuals of the firms has been going on in these workshops.

During 2003-2004, the board of HÅ increased the demands on the president and on the management. It was a strong demand to deliver a higher operating margin. There was a general understanding within the management team of why some objectives were to be revised, though many felt that the new levels were very tough to reach. To be able to implement the new objectives in the organization, the board members decided to appoint a new president. As a consequence of this decision, the former president immediately left the company, and with him, valuable information about most of the business operation and customer understanding. Even though much information was lost when the former president left the company, the relationship with the main customer Schenker remained. However, a comment from the new president was that "*it felt like starting with an empty map*".

Up to this point, there had been no real questioning of VT as the supplier of new trucks. However, when HÅ changed president, the organization of VT was wondering what to expect. From HÅ's perspective, the main focus was to ensure that Schenker wanted to continue to provide business. Accordingly, the new president and the organization utilized the individual contacts that already were established with Schenker in order to secure the relationship. HÅ was also backed up by one of the shareholders that previously had been a firm within the Schenker Group.

During this period, VT was set in a “*wait and see*” mode. One of the first decisions of HÅ was to form a new management team that was suited to handle the new demands from the shareholders and to fulfil the criteria set by Schenker. A new vehicle manager was assigned to develop the truck fleet and to ensure that the transport assignments were delivered in time and quality. A consequence for Volvo Trucks’ sales organization was a change from having one main contact (the former president) to several contacts, whereof the new president and the new vehicle manager were to be prioritized. During 2004 a more stringent purchasing policy and a more formal purchasing process were established by HÅ, which affected the way of doing business with VT.

6.3 The 2005 episode

During the spring of 2005, the vehicle manager checked the status of all trucks in the existing truck fleet of HÅ. The results showed that some of the trucks had reached a critical accumulated driving distance, where the probability of quality problems, like unplanned stops, increases. To prevent such quality problems, an investment proposal was presented to the management team, who approved investing in new trucks without any major discussion. The focus in the discussions was, besides avoiding unplanned stops, that a new heavy-duty truck should have better quality features and that a new engine should lower the fuel consumption. After the investment was approved, the vehicle manager wrote a first draft of the technical specification for each new truck to buy. To receive input, the vehicle manager asked some of his colleagues for advice and recommendations. Those that influenced him most were the drivers and the transport leaders. After receiving their input, a dialogue was initiated with VT.

The initial meeting between HÅ and the dealer (Volvo Truck Center) was held in connection with a regular monthly meeting between the firms. What was surprising to the employees at the dealer was that the vehicle manager told them that HÅ planned to distribute a sales quotation letter to several potential truck manufacturers. This was perceived by VT as a completely new way of doing business. When the sales manager told his organization about the changed process, a lot of speculation started among individuals at VT whether HÅ really would continue to do business with VT. The answer from the sales manager was: “*We need to wait and see*”.

In accordance with what the vehicle manager had communicated previously, HÅ distributed the sales quotation letter to several truck manufacturers. According to the president at HÅ, the main reason to send the letter to several manufacturers was to receive more alternatives and to compare price levels between the manufacturers. However, HÅ finally decided to limit the distribution to the two Swedish manufacturers of heavy-duty trucks. The logic behind just sending the sales request letter to these two manufacturers was that both were perceived as premium brands with high-quality products and that both VT and S have the required density of workshops located in connection to the main transport routes of HÅ. Because most of the trucks in the HÅ truck fleet need to be used 24 hours a day, 7 days a week, it was important for HÅ that the truck manufacturer had a large number of workshops to repair a truck if something was to happen and that these workshops were open 24/7.

The sales quotation letter was received by the sales manager at the Volvo Truck Centre on April 27th. After receiving the letter, the sales manager gathered his organization and discussed the contents addressed, especially what was stated in the technical specifications. Accordingly, a response was worked out with the technical specifications as the basic input. The sales manager made several telephone conversations with HÅ to follow up with the vehicle manager that the response was covering what was expected. During one of these telephone calls, service and repair agreements were discussed. In accordance with this conversation, VT decided to include an option, which included service and repair agreements. The VT response was sent on May 23, 2005.

HÅ confirmed to VT that it had received responses from S and VT. These responses were analyzed in relation to the technical specifications stated by HÅ. HÅ perceived both to be premium brands and both were fulfilling the technical specifications. According to the president, the main differentiator between the two was that VT had more workshops linked to the main transportation routes where HÅ was conducting its business. The established relationship between VT and HÅ was also mentioned as positively affecting the decision of what supplier to select. The more comfortable driving seat was also a product feature brought up positively for VT.

Hence, after analyzing the responses, HÅ decided to give the order to VT. Accordingly, an order document was signed between HÅ and VT on June 16, 2005. All in all, the sales to order process for the 2005 deal took about 2 months.

6.4 The resulting offering

The request from HÅ included four heavy-duty trucks to be used for long-haul transportation. The trucks should be delivered during summer and autumn the same year. The sales request also described the main features of the equipment required for the long-haul usage. More specific technical details of the trucks were supposed to be discussed in the coming sales-purchase dialogue between the two firms. This dialogue, and the ways in which it impacted on the features of the offering, are presented in Chapter 7.

In this section the characteristics of the customized offering are described in relation to the building blocks of Volvo Trucks' offering – see Figure 6.3.

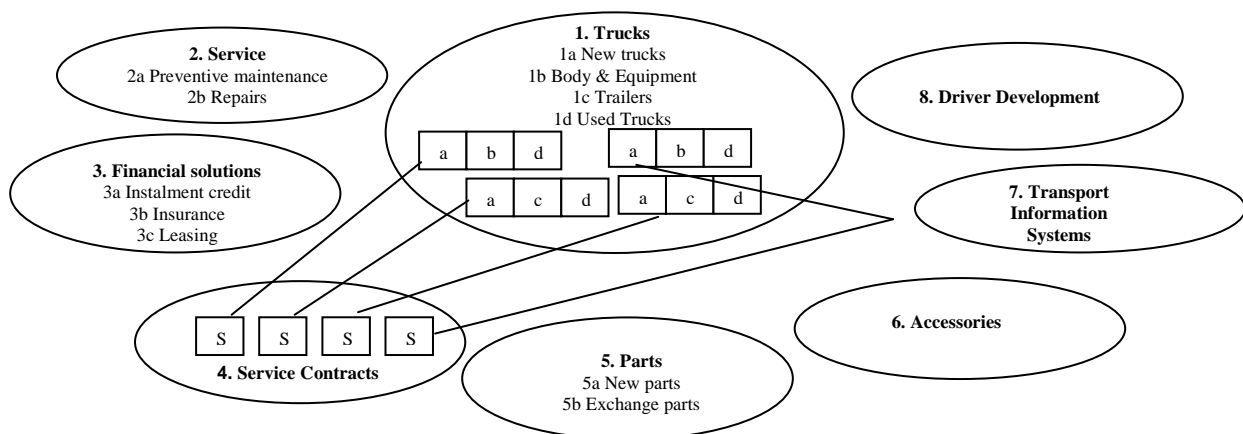


Figure 6.3 The resulting offering

Starting with building block 1a, all four new trucks were to be used for long-haul transportation. For this reason the deal involved four tractors and thus no rigids, since these are used in construction. The driveline was based on a 12 litre diesel engine and a manual gearbox that was attached to a chassis with a 6 x 2 wheel combination. The four trucks are represented in the ellipse of building block 1 by the two combinations a-b-d and a-c-d respectively. These notations indicate that two trucks were complemented with swap bodies (offering element 1b) and two complemented with trailers (offering element 1c). This combination of swap bodies and trailers was more or less the same as for previous business deals between HÅ and VT.

Since HÅ returned four leased trucks with expiring service contracts, offering element 1d was part of all four cases. Swap bodies that are attached to the frames of the truck chassis are produced by VT's suppliers. In the initial request HÅ had specified that it preferred the swap body solution of Gehab – a company located in Småland. This firm was recognized for proved knowledge how to handle the physical interface between swap bodies and the truck chassis. VT had an on-going business relationship with Gehab since several years previously. Therefore, the VT awareness of Gehab's capabilities made it easier for VT to approve HÅ's request for this specified sub-supplier.

The four S's in building block 4 indicate that all new trucks were covered by service contracts. The customer preferred a pro-active approach to avoid unplanned stops, in order to be able to offer premium quality transports. Therefore, the gold version of services, which is the most covering option, was chosen for all trucks. This means that alternative 2a in building block 2 was applied in relation to HÅ, even though that block as such was not included in this deal. The financial solution was also part of the service contract. The customer preferred a leasing arrangement rather than ownership since they wanted to avoid balance sheet impact. The full service lease thus represented alternative 3c in building block 3.

In the 2005 deal neither Transport Information Systems (building block 7) nor Driver development activities (8) were included. Furthermore, the request from HÅ comprised no separate buying or exchange of Parts (5) or any initial need of Accessories (6). In Chapter 7 it is described how the features of the resulting offering developed during the interaction between VT and HÅ.

6.5 The suppliers involved

Most of the sub-suppliers activated in the 2005 episode belonged to the group of preferred suppliers in accordance with the single-sourcing strategy. The only exception to this was to use Gehab as the sub-supplier of the swap body solutions, which was a request stated in the order quotation from HÅ.

The four ordered trucks were then assembled at the production site Tuve/Göteborg. The production planning department at the plant ordered the components and systems that were

needed. These suppliers had been chosen and coordinated by Volvo 3P and were now activated in order to deliver the components and systems just in time to the production flow.

Some of the main actors in the 2005 episode are illustrated in Figure 6.4.

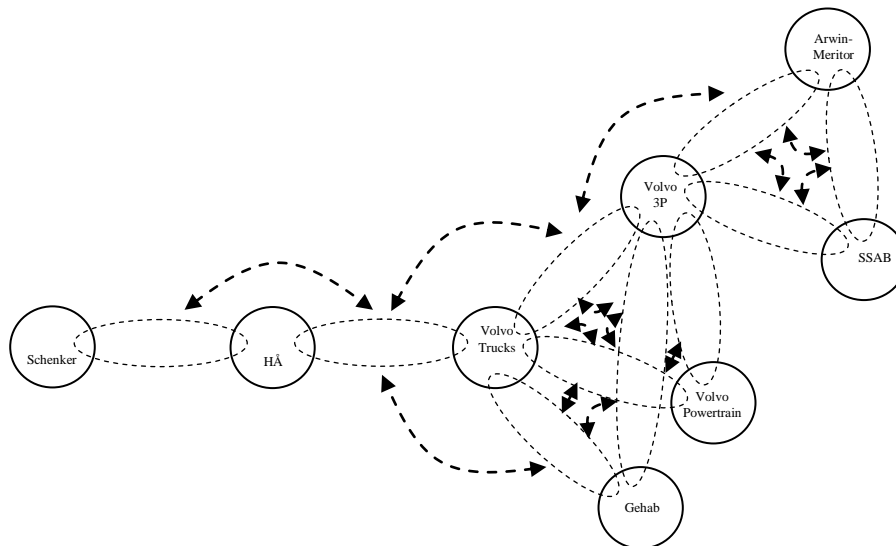


Figure 6.4 Main actors in the 2005 episode

The main actors were the following:

- Volvo Powertrain: an internal supplier supplying engines produced at the Skövde plant and the gearboxes in Köping. Engines and Gearboxes were up to 2001/2002 produced by the same factories within the legal structure of Volvo Trucks as a Powertrain division. After the Volvo Group acquired Renault Trucks and Mack Trucks, the management team of Global Trucks established Volvo Powertrain in order to coordinate driveline issues and gain synergies.
- Volvo 3P: an internal supplier responsible for product planning, product development and purchasing for the truck business. As Volvo Powertrain, established 2001/2002.
- ArwinMeritor: supplying the rear axles. Up to year 2000, rear axles were defined by VT as strategic components to be supplied internally. When redefining the Volvo Group strategy for commercial vehicles, the rear axles business was divested to ArwinMeritor, which is a global supplier that fulfilled the criteria of a premium supplier.

- SSAB: steel to the frames for the chassis. A Swedish steel manufacturer of hot and cold reduced strip, who is a global leader of value-added high-strength steel. SSAB is fulfilling all the criteria of a premium supplier, and VT and SSAB have a long history of doing business with each other.
- Gehab: was the only supplier that the customer stated as a preferred sub-supplier in the order quotation. The firm was founded in 1976 and is a family-owned company with 70 employees based in Alvesta, Sweden. Gehab supplied the swap body. Their primary goal is to offer customer-adapted truck bodies and equipment. Their swap body solution consists of two parts: a platform/van body which can be placed on support legs but, despite that, lies low on the body.

All suppliers receive in general a 12-month rolling programme volume that makes it easier to plan their respective volumes and resources. Customer-specific systems are planned and delivered when the product offering is to be assembled. The 2005 deal was scheduled for production with a lead time of about 4-5 months between order and delivery. No deviating contacts outside standard procedures were taken with the suppliers in the 2005 deal, besides the specific activity synchronizing through an electronic sheet showing the planned production volumes.

The 2005 deal was perceived by the main suppliers as a general and normal deal. No specific incidents or requirements were noted. Thus, the combining of the product offering elements for the 2005 deal went according to plan without any major deviations.

As discussed above, the features of the final offering were the outcome of an on-going dialogue between HÅ and VT. In the next chapter, the supplier-customer dialogue is analyzed as a process of steps in order to combine a product offering that fulfils the customer requests.

7 The Customer-Provider Dialogue

This section covers the process of interaction between customer and supplier from the sales quotation to the final product offerings is delivered to the customer. During this process, the product offering elements were combined in accordance with what is stated in the order quotation and what is addressed during the dialogue between the customer and the suppliers. The analysis is based on the model of Anderson and Narus (1999), which sorts the elements into products and services, some of which are standard while others are options.

The combining of product offering elements takes place not only during the assembly process. It starts already in the sales quotation where the overall offering context is set. In this early phase, the customer defines what functions, features or product elements it is interested in buying. In the process of combining the offering in relation to these features, five separate phases can be distinguished: sales quotation (section 7.1), supplier response (7.2), order (7.3), assembly (7.4) and delivery (7.5). In these phases the elements are reviewed and to some extent updated. Figure 7.1 illustrates the five phases in the sales to delivery process.

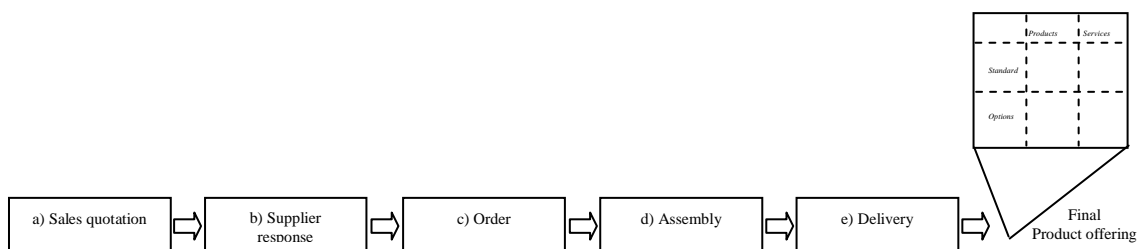


Figure 7.1 The sales to delivery process

The interaction is described phase by phase, starting with an overall discussion about the influence of the supplier-customer dialogue on the combining of product elements.

7.1 The sales quotation

HÅ and VT have made truck deals with each other since the HÅ was founded in 1994. Therefore, ordering new trucks is part of the continuing dialogue between the firms. The following section focuses on the product offering elements and how these were adapted and combined during the sales quotation. A precise date for when the sales process started is clearly not seen in the interviews and material linked to the episode. One explanation is that the provider-customer dialogue has gone on for more than a decade and product issues are discussed in the interaction between the companies. According to the president at HÅ, the sales interaction started during some of the informal dialogues on the autumn 2004 between the president and the sales manager. Since these meetings were held on a regular basis, issues regarding the status of the HÅ truck fleet were continuously discussed. No specific sales request was made during late 2004/beginning 2005.

The discussions to invest in new trucks were intensified early spring 2005. However, the investment was already part of the budget discussions internally at HÅ in the autumn of 2004, because the lease contract of the four trucks was to end during 2005. Both parties knew the business of each other well, and VT was aware of the need of HÅ for upgrading the truck fleet regularly. Accordingly VT was expecting a request to replace trucks during 2005.

In the terms of Håkansson and Snehota (1995), the relationship characteristics changed from high informality to increasing formality. The change in behaviour was first noted when the president at HÅ told the sales manager at the truck dealer that they were to receive a written request within a short time. This was a modified approach, from a more informal discussion that had been the way to do business in the past, to written documentation and request. This change created uncertainties within the sales organization at the VT dealer of what to expect. The previous more informal approach was gradually changed during the process. The sales quotation letter was distributed on April 27, 2005. In the letter HÅ stated that it planned to buy four new heavy-duty trucks for long-haul usage and that these trucks were to be delivered during the summer and autumn of 2005.

The sales request was expressed on an overall level, describing what the trucks were to be equipped with to match the long-haul business of HÅ. More product-oriented details were to be found in the technical specification and further explained and discussed in the upcoming sales dialogues between the firms. Figure 7.2 illustrates the content of the sales quotation letter in terms of the model of Anderson and Narus (1999). The terminology is according to the sales request and not as detailed as in the technical specification. The numbers 1 to 4 in Figure 7.2 refer to the four ordered trucks.

Date April 27 2005	Products	Services
Standard	1) Van body with back lift - Delivery: As soon as possible 2) Van body with back lift; temperature transportation - Delivery: As soon as possible 3) Appropriate equipment - Delivery: October 4) Appropriate equipment - Delivery: December	
Options	3) and 4) Either with Gehab swap body platform or van body Alternative superstructures - Van body - Swap body for temperature transportation - Surcharge for back lift - Swap body platforms by Gehab	Financing alternatives - Financial lease including residual value - Down payment agreement Repair agreement including tires - Including superstructure - Excluding superstructure Service agreement

Figure 7.2 *The offering according to the sales quotation*

Nothing was specified about what specific truck model was required, other than that the trucks were to be used within long haul. More details were written about the superstructure, and about financing and repair.

One explanation is that the long-term relationship between HÅ and VT has generated considerable mutual knowledge about the business prerequisites, including what truck models to be used. This clarifies why the product offering elements are stated on an overall level in the sales quotation letter. The long-term relationship between the firms made it also possible for the sales organization at the dealer to immediately start preparing a response based on the contents in the sales quotation letter. In order to be able to finalize a written response, a

number of follow-up questions were discussed primarily between the sales manager at VT and the vehicle manager and president at HÅ.

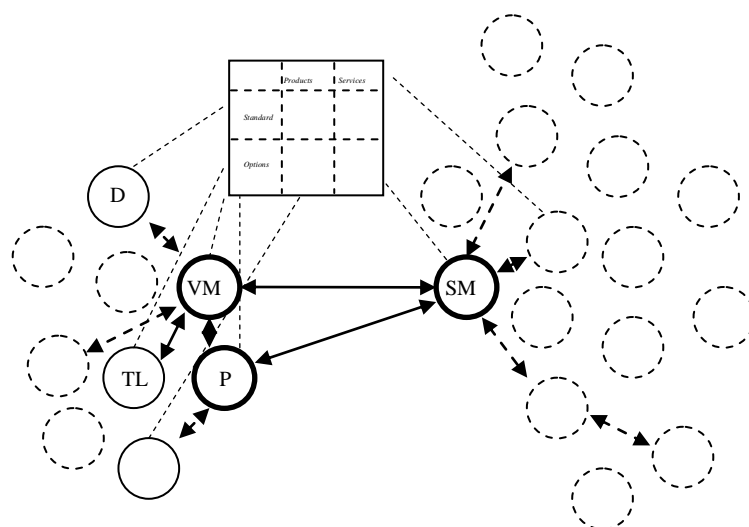


Figure 7.3 *The most important individuals involved*

Figure 7.3 shows the individuals that were most influential in the initial dialogue. Even though the vehicle manager (VM), the president (P) and the sales manager (SM) activated other individuals in order to receive adequate information about the product offering elements, most data and reflections were channelled and evaluated back to these three individuals. These actors possessed strong actor positions and were highly influencing the offering. Even though the vehicle manager (VM) took many own decisions, this opinion was influenced by the advice and reflections given by the Drivers (D) and the Transport leaders (TL).

7.2 The supplier response

After the on-going sales dialogues between HÅ and VT, a response was consolidated and distributed by the sales manager on May 23. The process from the request letter to the response took about one month. This may seem a relatively long time to prepare a response when the business prerequisites are well known. But due to the long-term relationship, the late response was not perceived as critical. In order to respond properly, VT used several information sources, some of which are illustrated in Figure 7.4.

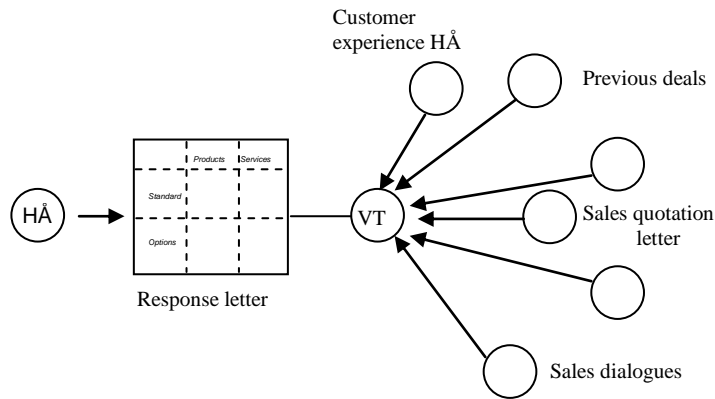


Figure 7.4 Sources of input to the sales response

Important sources of input were customer experience and requests, past learning from previous deals, the on-going sales dialogue, and the contents in the sales quotation letter. The supplier response stated in a letter from May 23rd is illustrated in Figure 7.5.

Date May 23, 2005	Products	Services
Standard	1) FH12 6x2 Van body with back lift - Delivery date: Fast delivery 2) FH12 6x2 Van body with back lift; temperature transportation - Delivery date: Fast delivery 3) FH12 6x2 with Gehab swap body with back lift - Delivery date: Not stated 4) FH12 6x2 with Gehab swap body with back lift - Delivery date: Not stated	
Options	1) and 2) Loaded with SKAB superstructure and ADR or Ekeri superstructure	Financing alternatives - Full service leasing - Financial leasing - Down payment agreement Repair agreement - 5 year contract with a yearly driving distance of 200,000 km Service agreement - The Volvo Gold contract - Including superstructure - Excluding superstructure

Figure 7.5 The product offering according to the supplier response

The response from the sales manager at VT described the product elements in accordance with the level/format in the sales quotation letter. The main change in relation to the sales quotation concerned the way the standard products were described. In this respect, the response proposed to HÅ stated what truck models and features like power/engine size, front and rear axle configuration etc. were recommended. The response was in line with the customer request of using Gehab as the preferred swap body supplier. However, even if VT supported Gehab as the preferred supplier, it evaluated alternative suppliers for receiving a cost comparison. When it comes to financing, repair and leasing, VT opened up for a variety of different options, because the offer can be customized and adapted relatively late in the sales process.

One reason for VT to offer several options regarding services was that this area is growing fast and that these elements are updated with a much higher frequency than the physical product elements. The main change between the sales quotation and the supplier response was this level of specification of the elements, where the supplier response was more detailed regarding the offered truck model and its features. VT also gave alternative options, specifically regarding elements of services that were not initially addressed in the sales quotation letter. This could be achieved thanks to the knowledge that had been transferred during past interaction.

After receiving the response, HÅ evaluated the product offering elements suggested.

7.3 The order

The customer evaluated the responses in three weeks before it gave the order to VT. The main arguments were that VT and HÅ already had established a well-functioning long-term relationship and that VT had considerable knowledge about HÅ's business situation. The relational aspects were at least as important as the product offering and its features, according to the president at HÅ.

Both manufacturers responded to the sales quotation letter by sending written response letters. The order confirmation text from HÅ to VT contained the following messages.

“After thorough evaluation of the sales responses, we have decided to purchase four long haul vehicles, since the Volvo Truck Center offers the most cost efficient alternative. Accordingly, we order four heavy-duty trucks for long haul usage according to the sales response of the Volvo Truck Center. It is our wish that the four long haul vehicles are specified and delivered accordingly. We would like to have a status meeting before the delivery of truck number 4, in order to decide if a back lift should be assembled. We would like to evaluate the financial solution in connection with the delivery. All vehicles are purchased with repair agreements. What kind of repair agreement to apply will be decided at the time of delivery. We would also like to thank you for a well prepared sales response. I hope and believe that Volvo Truck Center and HÅ will continue to have a good cooperation.”

The contents in the order letter to VT are illustrated in Figure 7.6.

Date June 16, 2005	Products	Services
Standard	1) FH12 6x2 Swap body with temperature Aurora, no lift preparation - Delivery date: As soon as possible 2) FH12 6x2 Swap body with temperature Aurora, no lift preparation - Delivery date: As soon as possible 3) FH12 6x2 Van body with back lift - Delivery date: Week 35 4) FH12 6x2 Van body - Delivery date: Week 44	1), 2), 3) and 4) with repair agreements
Options		Financing alternatives - Evaluated at the delivery

Figure 7.6 The product offering according to the order

A change from the initial sales quotation letter was that the swap body solutions now were to be delivered as soon as possible and that the van body solutions were scheduled later. These conditions were the opposite in relation to what was stated initially. This change in delivery time made VT update the assembly process accordingly. Concerning services, HÅ stated that

it wanted repair agreements for all trucks. However, the financing conditions were to be decided prior to the delivery.

7.4 The assembly

The trucks were produced at the Tuve plant in Göteborg. This was also geographically the closest production site to the transport routes of HÅ, who uses Göteborg as a focal transportation hub.

The production site at Tuve is, besides manufacturing the frames for the truck chassis, an assembly unit. The production process is a pre-defined process where components and systems are assembled through a sequential production flow. The components and systems stated in the order are delivered to the defined assembly nodes in the production flow just in time. The ordered trucks, i.e. FH12 6x2 tractors, were produced according to the specifications in the order letter and technical specifications.

After the VT dealer inserted the order data into the production system, a preliminary delivery week was determined. This date compared to what was stated in the order letter, i.e. 1) and 2) fast delivery, 3) October and 4) November. Information regarding the production schedule about all components that were needed was forwarded electronically to the sub-suppliers. The components were then to be delivered just in time at the assembly line. During the sequential assembly process all components were gradually attached and combined into a total product offering. No supplier disturbances were noted. The outcome of the assembly process was the four trucks.

7.5 The delivery

The product offerings were delivered during the autumn of 2005 in accordance with the order agreement. The delivery date was deviating with about two weeks in relation to the order requests. However, the delivery date was fully in line with agreements in the on-going sales to delivery dialogue. The trucks were delivered to the customer at the dealer site in Göteborg and were perceived as being fully in line with what had been ordered.

This chapter has covered the process from sales quotation phase to the final product offering was delivered. During this process, components and systems are combined not only in the assembly process. It starts already in the sales quotation where the overall product offering context is set.

8 Combined Offerings and Business Relationships

This chapter brings up issues related to both the specific deal with HÅ and the general characteristics of VT's offering and supplier network as presented in Chapters 4-7. The findings from the case study are related to the concepts presented in the framework, as well as to some complementary literature. In 8.1 central principles for combining extended offerings are discussed with particular focus on two aspects: (i) organizational issues of relevance (both internal and external) and (ii) the investments in the infrastructure for services that are required. The following two sections deal with the prerequisites and consequences related to the business relationships of the provider of the offering. Section 8.2 is concerned with the relationship to the customer, while supplier relationships are dealt with in 8.3.

8.1 Combining the offering

The offering of Volvo Trucks features the general characteristics of an extended, or augmented, offering as outlined in Chapter 2. The core product (the truck with body and trailer) is supplemented with what White et al. (1999) identify as 'traditional tangible services' such as spare parts, maintenance and other services and accessories. Furthermore, the non-tangible aspects discussed by Thoben et al. (2001) are represented in terms of financial solutions, transport infrastructure systems and driver development. White et al. (1999) also distinguish between two types of product-based services. One is defined as 'product extension services' which corresponds to the services discussed above. The other is 'product function services' where the supplier stays as the owner of the physical goods that is then leased by the customer. As shown in Chapter 4 both types of services are part of VT's offering.

In the process of combining extended offerings two issues appear significant. The first of these deals with organisational aspects, highlighted by, for example, Foote et al. (2001) and Shankar et al. (2009). The second concerns the investments in the services infrastructure that

are required to support the provision of an extended offering, brought up by Oliva and Kallenberg (2003), among others.

8.1.1 Organizational issues

There is a general understanding that organizational issues are important in any effort of combining extended offerings. For example, it is claimed that the main problem in developing customized offerings “*is generally not the company’s strategy to pursue a solution business, but rather its inability to align its organization behind the strategy and execute it effectively*” (Insights, 2001:1). Similarly, Foote et al. (2001) argue that shifting from product-centric logic to solution business is problematic, because companies involved in this transformation need to modify their current product-focused business practice and break established lines of accountability. Matthyssens and Vandenbempt (2008) argue that restructured arrangements in this respect require organizational changes both internally within a firm and in relation to important business partners.

Firms that have managed to become successful solution providers (like ABB, IBM and Nokia) have realigned their organizations accordingly (Foote et al., 2001). They have done so by forming strong ‘front end customer facing units’, responsible for design and delivery of total solutions. Furthermore, they have refocused their previous product-centred business units to become back-end providers of these offerings. These back-end units must have expertise in developing core capabilities and platforms that form the basis of the offering (Windahl and Lakemond, 2006). In the same vein Davies et al. (2006:39) claim that extension of offerings requires “*new organizational structures and capabilities*”. A firm involved in providing customized solutions has to decide what internal capabilities that is required, what capabilities are no longer called for, and what partners to involve for resource sharing.

On this basis the authors suggest a three-step process involving modifications in terms of learning, capability building and organizational change. In order to facilitate the transformation from product-based logic to solution-based business, four internal factors have been found crucial: (i) building value-adding service awareness; (ii) redefining managerial roles; (iii) avoiding the service-for-free trap and (iv) establishing a clear understanding of the roles of a service provider in contrast to product selling (Matthyssens and Vandenbempt, 2008:326). The above recommendations fit well with the description of VT’s enhanced

engagement in customized offerings in Chapter 4 in terms of the interplay within the company between the ‘business model’, the internal ‘capabilities’, the nature of their ‘resources’ and what these factors imply with regard to ‘behavioural change’.

Organizational issues are critical also with regard to what goes on in the relationships with customers, as well as in the integration with the suppliers involved in the creation of the offering. As shown in Chapter 2 there are clear links between the internal organizing of a company and its inter-organizational connections. Adaptations of the external organizing are therefore required since “*the initiating supplier will have to manage and shape its network, as well as shaping patterns of its partners*” (Matthyssens and Vandenbempt, 2008:325). As Chapter 5 showed, organizational issues are critical for the effective exploitation of the resources in the supplier network of VT. Well-functioning organizational arrangements are required for the interaction between internal functions (like purchasing and R&D) and the internal functions of suppliers. The outcome of collaboration between two companies is strongly dependent on the organizational set-up within the two companies, as well as on the ways the connections between the two are organized. Thus far, the efforts of VT have focused on organization of the relationships with individual suppliers in order to improve joint performance.

The bigger task which has been initiated is to stimulate the organizing of well-developed relationships among suppliers. Such actions may create significant benefits and therefor “*a buying firm should always try to encourage cooperation among its suppliers*” (Gadde et al., 2010:128)

8.1.2 Investments in infrastructure

Becoming a service provider requires the supplier to take the step away from the ‘factory gate’ (Oliva and Kallenberg, 2003:167). One of the critical tasks, and a major difficulty, in this reorientation is claimed to be “*the need to create a global service infrastructure that is capable of responding locally to the requirements*”. According to the authors, the establishment of this infrastructure presents three problems. The first is the decision to invest in the physical facilities required. The second is that the operation of this infrastructure calls for two capabilities that are not always at hand in a company relying on the product-based

logic. One of these is to run a distribution service network in an effective way, the other is to diffuse knowledge across this network in order to enhance its performance. The third issue is making explicit decisions concerning the degree of standardization and customization. The global service organization of VT consists of 2500 dealerships and workshops all over the world. In this way the company is represented in more than 140 countries, indicating a huge international growth over time. This development is illustrated in the changes over time in the distribution of VT's sales on three markets (see Table 8.1).

Share of total sales	1960	1970	1980	1986	2007
Nordic market	69%	50	25	18	7
Rest of Europe	14%	31	50	40	52
Other markets	17%	19	25	42	41

Table 8.1 *Volvo Trucks' increasing internationalization over time*
(Source: Engström et al., 2010:8)

The effect of the international expansion is dramatic since the Nordic market's share of total sales decreased from more than two thirds to less than 10% in fifty years. The evolution of the business of VT is a good illustration of the path where product development towards the high-end assortment is combined with enlargement of the geographical base (Engström et al., 2010). This development seems to be a representative case since it is claimed that enhanced global orientation is accompanied by "*wider product assortment and advanced product categories*" (Gabrielsson et al., 2006:654). VT's first truck was launched in 1928 equipped with a 28 horsepower engine. The expansion of VT in terms of engine horsepower capacity over time is illustrated in Table 8.2, clearly indicating the ambition to apply to the more demanding transportation segments.

Engine Hp	1928	1935	1950	1977	2002	2010
Minimum	28	65	90	120	180	180
Maximum	28	140	230	400	500	700

Table 8.2 *The upgrading of the assortment of VT*
(Source: Engström et al., 2010:8)

This upgrading in the core product dimension of the offering called for high-quality services and required adaptations of the service organization in order to live up to the expectations placed on a world-leading provider of customized offerings. The text below illustrates one such VT-adaptation that was used as a significant example in a Harvard Business Review article dealing with the general need to make distribution more efficient and effective (Narus and Anderson, 1996:114).

Consider, for example, how Volvo GM Heavy Truck Corporation and its dealers solved a vexing business problem...Between 1993 and 1995, the company's dealers had been reporting more and more stockouts on critical parts, even though inventory levels were soaring. Because they couldn't provide consistent, timely repairs, the dealers were losing a considerable amount of business - business that constitutes a major growth opportunity. Volvo GM managers knew that the problem was related to the dealers' inability to predict demand for parts and services accurately. Through careful market research, they learned why that was the case. Customers use replacement parts in two quite different situations: scheduled maintenance and emergency roadside repairs. In the first situation, Volvo GM's conventional distribution system was working well because customer requirements varied little and the necessary parts could be ordered and delivered ahead of time. In the second, the system was extremely ineffective because the demand for emergency repairs simply could not be predicted. No matter how much inventory the company put into the channel it seemed that almost every time a truck broke down, the critical parts were in the wrong place and not readily accessible... Once Volvo understood the problem, it could address it. Working with FedEx Logistics Services, the company set up a warehouse in Memphis, Tennessee, that would stock the full line of truck parts. Now when a dealer needs parts for an emergency repair, the manager calls a toll-free number and the parts are shipped out by FedEx, often on an afternoon flight so they arrive that same night. Parts can be picked up at the airport by the dealer's personnel, delivered to the dealer's offices, or even dropped off at the roadside repair site...Today Volvo GM is losing less business because of stockouts and dealers' revenues from emergency repairs have risen significantly. Moreover, Volvo GM has eliminated three warehouses and reduced its total inventory by about 15%. Lower inventory and storage costs have more than offset

increases in the company's freight charges. Managers report that they have been overwhelmed with compliments from both dealers and customers.

The above example is not used to describe the current service configuration of VT's US service operations, which have become further advanced. It is used to show that when the product part of the offering becomes more sophisticated, the service part must be adapted to live up to the expectations and requirements of customers. The US case of VT illustrates the relevance of the argument of Oliva and Kallenberg (2003) concerning investments in infrastructure and ability to run a distribution network.

8.2 The relationship with the customer

Every company interacts with many other firms. Some of these interactions result in long-term relationships. This longevity provides the foundation for the links, ties and bonds that are established in business relationships. Many relationships have a tendency to evolve over time, implying that some firms become closely connected.

This section focuses on the relationship between VT and the customer HÅ. The analysis of this relationship takes the point of departure in the dimensions of business relationships described in Håkansson and Snehota (1995) and the social parameter model developed in Granovetter (1973). The characteristics addressed by Håkansson and Snehota are used to examine relations between firms, while the model of Granovetter is used to analyze relations between individuals. Section 8.2 concerns the relationship with the customer, while section 8.3 covers VT's relationships with its suppliers.

8.2.1 The firm-level relationship with the customer

Håkansson and Snehota (1995) argue that a relationship between firms can be understood by utilizing four characteristics of business relations – see Figure 8.1.

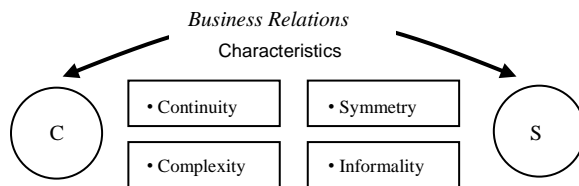


Figure 8.1 Characteristics of relationships with customers

The following section investigates the relationship with the customer on the firm level on the basis of the four characteristics in Figure 8.1 and the empirical data from the 2005 episode.

Continuity

A customer-supplier relationship may through interaction evolve to become a long-term relationship with strong bonds between the two firms. These conditions are at hand in the focal business relationship between HÅ and VT. This relationship had been on-going for about a decade prior to the focal episode. It started already in 1994 when the customer company was founded. It continued almost unchanged up to 2004, when the former president left the company. However, even when the most influential individual at the customer disappeared, the business relationship continued through the connections on the firm level. The effects of the changes on the firm level and the individual level are illustrated in Figure 8.2.

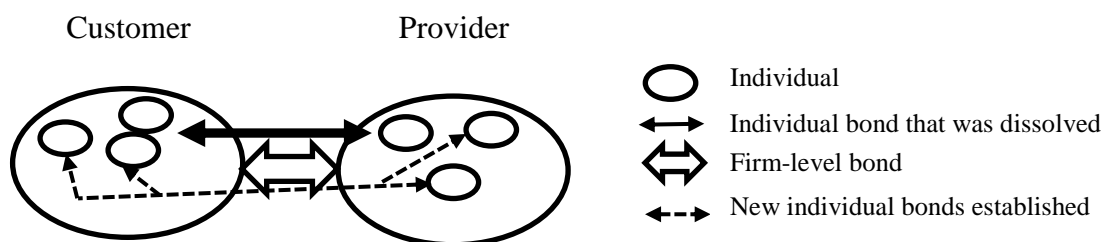


Figure 8.2 Actor bonds among individuals and among firms

The interaction between VT and the customer had to a large extent been characterized by informality. Their long-term relationship had resulted in continuous business based on strong customer loyalty to buy product offerings from VT. One example of this brand loyalty is that the truck fleet at the customer consisted of more than 90% VT branded products. This is one explanation why the bonds at the firm level continued to be strong, even though the individual bond to the former HÅ president was dissolved. The tendency of HÅ to return to the same supplier (VT) was based on several reasons. According to the firm, factors like brand loyalty, product and technology competence, availability of service network and the established relationship are some of the most important explanations. The workshop structure of the supplier fitted well with the transportation routes of the customer. The technology of VT was in line with what HÅ had promised to deliver to its customers. The overall business understanding of the respective firm's business has supported the interaction and relationship positively and formed the basis for continuity.

Complexity

A relationship is influenced by a variety of factors, whereof some will increase the relational complexity. In the beginning of the 2005 episode, the dyadic relationship between VT and HÅ was not perceived as particularly complex in terms of number of people involved, type of content and contact patterns of the individuals. These complexity drivers are illustrated in Figure 8.3.

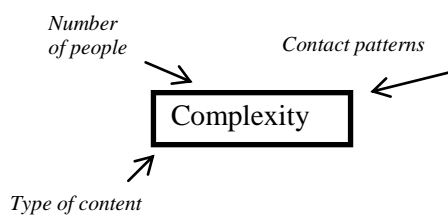


Figure 8.3 *Complexity drivers*

For example, in the 2005 episode about five employees at each firm were the main contacts when the truck deal was conducted. In the previous customer-supplier interaction, the relational complexity was even lower. Up to the beginning of 2005 the business relationship was more or less limited to two individuals: the former president at the customer and the sales manager at the dealer. In connection with the 2005 deal, the new president at the customer

firm extended the number of contact persons engaged in the interaction with VT. This change increased the contact nodes between the firms. One reason for the customer to allocate extra relational resources was that the product offering had become more complex in relation to historical offerings. The main factor of the increasing complexity was the rapid technology development that the customer needed to adapt to. The business relationship, which in the past was perceived as relatively straightforward to handle, became more complex owing to increasingly technology-driven components and systems. The complexity was enhanced also through the new formal purchasing process, which added a number of decision steps and customer touch points. It also led to increased supplier uncertainty of what to expect.

The purpose of changing the business process to include written documents was, according to HÅ, to enhance clearance through stating the product offering elements and the conditions in a formal agreement. This was a large difference compared to past interaction, where much of the agreements were set through informal handshakes.

Symmetry

Close and long-term relationships tend to increase the symmetry between the interacting firms. One explanation found in the business relationship between VT and HÅ is that a long-term relationship tends to result in mutual gains to a larger extent than when firms work at arm's-length distance. Even though the size differs between VT (one of the world's largest producers of heavy-duty trucks) and the customer (a small/medium transportation firm in Sweden), both parties perceived that their relationship provided a number of benefits. This means that symmetry is concerned not only with the sizes of the companies. Nearly all customers are smaller than VT. However, most of these customers have bargain power which influences and affects a supplier like VT in many ways, because the product offerings are customized. Hence, regardless of whether the firm is large or small, a customer has an influence on the supplier's planning and development of future product offerings. A supplier firm, like VT, consists of a number of smaller units such as a workshop located on a customer's transportation route. For this workshop, a specific customer like HÅ may account for a large share of the total business. Symmetry thus increases when comparing the organizational units that are actually interacting in the relationship. Figure 8.4 illustrates relationship symmetry when considering a small customer firm and the relevant organizational unit of the big supplier. The organizational symmetry increases when comparing HÅ with the VT dealer workshop hub that HÅ most frequently interacts with.

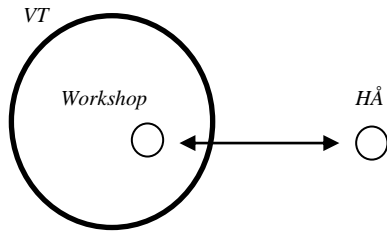


Figure 8.4 *Symmetry in the relationship between a small customer and a big supplier*

Informality

Informality in relationships relates both to the level of the firms and to the individuals representing these firms. A business relationship is affected when one or both firms in the relationship start to request policies, guidelines and written documents. The VT relationship with the customer HÅ developed to become a long-term relationship that over the years was based mainly on informality. The interaction and agreements in the past mostly were based on trust and in many cases agreements were approved through informal discussions.

However, some formal agreements have always been made in written form. As an example, the sales-to-order processes within VT require the order documentation to be signed by the customer. The relationship informality on firm level changed when the board of directors at the customer decided to implement a new formal process and hired a new president. This resulted in a higher degree of formality with written sales quotation letters and a formal business process. An advantage perceived by the customer was that they now were able to challenge the price of the offering when inviting several suppliers to respond to the sales requests. Hence, initially this change impacted considerably on the interaction between the firms. For example, it created uncertainty at VT of what to expect from the customer. Over time the formality has been reduced somewhat.

8.2.2 The relationship with the customer on the level of individuals

In order to get a supplementary perspective on relationships, the social parameter model developed by Granovetter (1973) is used to explore relationships on the individual level. The parameters are grouped into four areas, which are visualized in Figure 8.5.

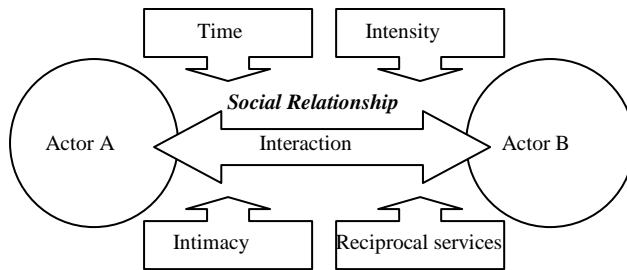


Figure 8.5 Social parameters of individual relationships

Time

The impact of time on a relationship concerns not only the amount of time spent on the relation, but also its effect on the content and the quality of the relation. The time allocated affects how strong the relationship is perceived to be by those who are directly or indirectly involved. The focal relationship had been on-going since the customer firm was founded. During this relationship, the interacting individuals enhanced their business knowledge and insight into the operations of each other. Therefore, the interacting individuals in the 2005 episode did not have to acquire so much general information of the respective firms, because they already had built up this business understanding in the past. However, the change of important individuals in HÅ management required additional time to be allocated by VT individuals in order to develop the relationships with the newly hired individuals at HÅ. This shows that the time depleted in a relationship is not evenly spread out during the lifecycle of the relationship. Sometimes intensified interaction requiring additional time is needed, for example when changing individuals. Because a supplier like VT must be able to handle many customer relationships in parallel, there is huge variation in the amount of time that can be allocated to a specific relationship.

Intensity

Intensity relates to the emotional engagement in a relationship. The degree of intensity between individuals affects how their relationship is perceived. In the 2005 episode about five people were activated at each firm, whereof some had already formed relationships, while some were newly established. The intensity and the engagement varied considerably among the individuals that were involved. Those who were more powerful and had the authorization to make decisions regarding the deal were also those who were more intensively engaged in the interaction. The level of intensity was higher for individuals that were able to impact on product features, price level and other aspects of the deal. This was observed through the

intensity and engagement expressed by the president and the vehicle manager at HÅ, and the sales manager at VT, who all had the power to influence the interaction. Individuals have different backgrounds, perspectives, roles and ambitions. These conditions affect the interaction in relationships to various extents. Accordingly, it is important to be aware of these characteristics of the individuals that are involved. This knowledge about the business partner increases over time as long as the relationship continues.

Reciprocal services

This aspect addresses the reciprocal view, which concerns the efforts of striving to achieve mutual gains for both parties of a relationship. Individuals involved in such attempts do not need to invest substantial resources in order to safeguard uncertainties linked to their counterpart. Individuals in a relationship that perceive opportunities for mutual gains tend to establish bonds to each other that support their actions to achieve these benefits. For example, the individuals in the focal customer-supplier relationship in the 2005 episode tended to search for solutions that were in line with their long-term cooperation. According to representatives of the customer, it was the quality of the offering, the workshop services at HÅ's transportation routes, and the individual relationships established that provided the foundation for the win-win relationship between HÅ and VT. Furthermore, people at HÅ stated that they perceived that VT's leading brand position in the truck industry boosted the brand name of HÅ.

Individuals in a relationship that has been going on for quite a long time tend to create a good knowledge of the operations of the counterpart, which is beneficial for the business exchange. On the other hand there is always a risk that the interaction between the individuals tends to follow the same routines and interaction patterns, which may hamper innovation and development. For example, the HÅ and VT interaction was in the past an informal dialogue driven by the former president that, up to the modified profitability requirements from the shareholders, had been following the same procedures for several years.

Intimacy

Intimacy is a consequence of mutual confidence between individuals. A relationship based on trust and reliability requires less resources and activities to be allocated to control and follow-up of the counterpart's behaviour and activities. Instead, intimacy may be established in a customer-supplier relationship as a result of joint action. For example, up to 2005 almost no

resources were allocated at HÅ and VT to internal activities aiming to control the counterpart. Trust and reliability take time to develop and are in general results of a close and long-term relationship like the one between HÅ and VT. Their relationship has been on-going since HÅ was founded, which obviously has resulted in a sort of intimacy between the interacting individuals. Several of the individuals at VT and HÅ have been interacting almost since the customer firm was founded. However, people change positions and employer, which also happened with the former president. The intimacy in the relationship was clearly affected when he left the company. Changes like this affect not only the individual relationship that is dissolved, but also the intimacy in other interrelated individual relationships.

Even though the intimacy in an individual relationship may decrease, or end, the firm-level relationship may continue more or less unchanged as in the 2005 episode.

8.3 Relationships with suppliers

This section focuses on VT's relationships with its suppliers. The analysis of the relationships on the firm level builds, as in section 8.2, on Håkansson and Snehota (1995). Since no external suppliers were interviewed, there is no analysis of relationships among individuals. In order to further explore the characteristics of the relationships with suppliers, the areas of buyer-supplier interdependence introduced in Chapter 2 are discussed in order to provide additional perspectives on the business relationships.

8.3.1 Relationships with suppliers on the firm level

As mentioned in section 8.2, the structural characteristics of business relationships are identified in terms of continuity, complexity, symmetry and informality.

Continuity

VT's relationships with important suppliers are characterized by considerable continuity. Since the firms have been involved in interaction for a long time, buyer and supplier are well aware of the competences and resources of the business partner. The main change related to continuity with suppliers is that a huge number of business relationships have been dissolved. Since the mid-1990s VT has reduced the number of vendors from 40,000 to 4,000. This dramatic consolidation of the supplier base indicates a substantial loss of continuity for most

of the previous suppliers. The main driver behind VT's modified strategy was the single-sourcing approach based on the request to have fewer supplier nodes. One consequence of this change is that tier-1 suppliers have become bigger and more powerful in negotiations. The new approach made the remaining relationships increasingly important, which, in turn, impacted on continuity.

The present group of preferred suppliers have been provided with considerable opportunities for prolonged continuity. The mutual adaptations between VT and a specific supplier make it interesting for both parties to maintain the relationship in order to benefit from the investments in the relationship. However, the extended continuity does not imply that all suppliers are activated in every business deal with the customers of VT. Most trucks are individualized in relation to customer specifications, which means that the nature of the particular offering determines what suppliers become activated, through the coordination of VT.

Depending on the requirements in terms of technology, competences or other resources, some of the preferred suppliers will be involved in a deal with a customer, while others are not activated (Figure 8.6).

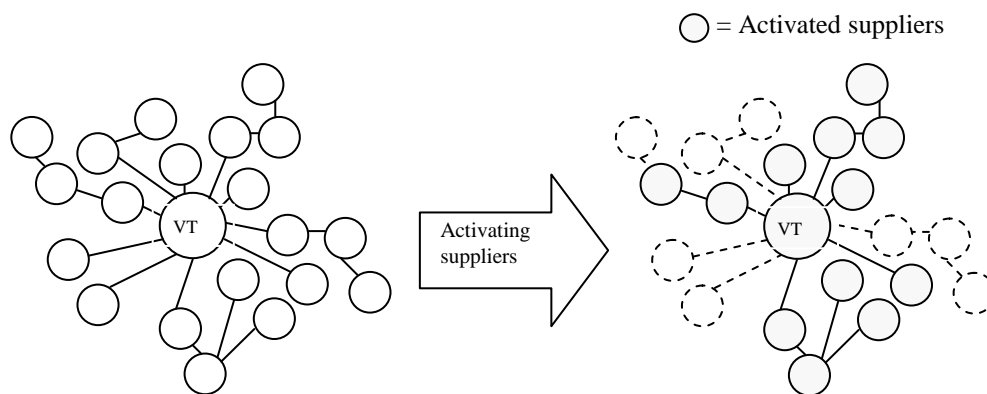


Figure 8.6 *Activating suppliers in a specific deal*

Complexity

As mentioned in the discussion of continuity above, the number of direct contact nodes (with tier-1 suppliers) has decreased substantially during the last decade. However, the total number of suppliers in the surrounding network is less affected. VT is in direct interaction with tier-1 suppliers, which in turn handle the interaction with tier-2 and tier-3 suppliers. This change

impacts on complexity in several ways. Since the preferred suppliers have taken over the responsibility for technical development, system design and just-in-time deliveries, each relationship with tier-1 suppliers has become increasingly complex. On the other hand, extended continuity and enhanced transparency improve the conditions for handling this complexity.

Furthermore, the general tendency concerned with increasing specialization, where each firm restricts its operations to a limited part of the total supply chain, explains VT's transformation of responsibilities to the tier-1 suppliers. In this way the direct complexity for VT is reduced, since the preferred suppliers manage complexity in relation to sub-suppliers. On the other hand, VT is strongly dependent on these suppliers since the total logistics/activity chain may involve 4-7 levels of sub-suppliers.

Figure 8.7 illustrates how a customer order to VT (the coordinating supplier) activates the preferred supplier of a specific system (S1). This tier-1 supplier then activates the next level of suppliers, which in turn activates other sub-suppliers (levels A1-A3). In this way S1 is responsible for the activation of the network of sub-suppliers within its specific component or system area.

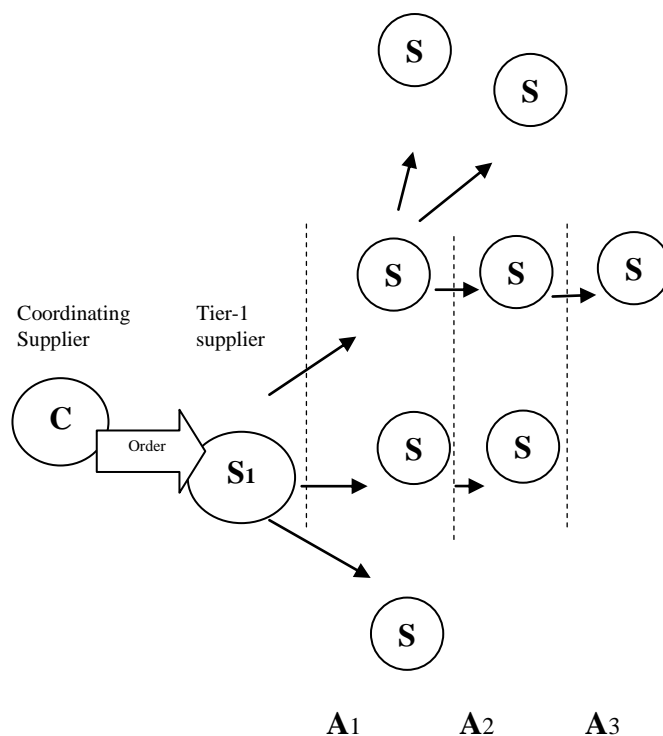


Figure 8.7 A network of activated sub-suppliers

There is also a complexity dimension linked to whether a component and system is sourced internally or from external suppliers. Outsourcing to external suppliers tends to increase the technology and competence dependence, since a lot of knowledge is transferred outside the legal entity of the Volvo Group. In these situations the level of business transparency is normally reduced. For example, VT perceived that after the rear axle production had been outsourced to ArvinMeritor, it was more complicated to maintain the previous insight in financial and capacity conditions of the supplier. When it comes to internal suppliers like Volvo Powertrain and Volvo 3P, these conditions are somewhat different since they are part of the same group. Furthermore, people working for internal suppliers may also have more occasions to meet and interact.

Complexity is also linked to the characteristics of the components and systems as such. For example, the standardized steel for the frames of the chassis supplied by SSAB is perceived by both VT and SSAB to be a component of low complexity. On the other hand, the electronic system, which is sourced from several suppliers, is perceived as highly complex owing to the fast technological development and its impact on other systems.

Symmetry

The symmetry in relationships with suppliers is influenced by a variety of factors. A single-sourcing strategy based on preferred suppliers supports the building of close relationships featured by continuity. As discussed above, these preferred suppliers are activated when their specific components and systems are requested. In this way the counterparts are mutually dependent on each other. Thus, through this approach a kind of symmetry in the relationship is established that is linked to the features of the product offering.

The variation in size among suppliers impacts on the level of symmetry. Global tier-1 suppliers generally have a powerful position in terms of their volumes and sizes. However, in many cases small, local, sub-suppliers can be of equal importance because they supply components that are critical to the functioning of the total product offering. In this respect, relationship symmetry can prevail in relation to both major and minor suppliers. For example, in the 2005 episode Gehab's technical solution for securing the interface between the truck chassis and the swap bodies enhanced the symmetry between buyer and supplier.

Informality

VT's relationships with suppliers are to a large extent based on policies, guidelines and written documents and are thus characterized by high formality. One obvious example is that the purchasing organization of VT has formulated several criteria (presented in section 5.4), which each vendor needs to fulfil in order to become a preferred supplier. These measures are important for VT in order to ensure the requested quality level of the offering. The criteria are used not only when a preferred supplier is engaged for the first time, but also for business control and continuous evaluation of supplier performance. Thus, all suppliers are provided with written agreements where these criteria and specific prerequisites are stated and signed.

A specific order is based on a written agreement with high formality. The contents of the contract are the foundation for what is to be assembled at the production plant. For example, the technical specifications in the order from HÅ to VT stated on a detailed level what major components and systems was to be part of the customized offering. The main conclusion concerning informality and formality is thus that the relationships between VT and its suppliers are characterized by more formal conditions than the relationships discussed in Håkansson and Snehota (1995).

8.3.2 Interdependences in relationships with suppliers

This section is concerned with dimensions of interdependences and how they impact on business relationships. The six dimensions identified in Chapter 2 refer to i) technology, ii) knowledge, iii) social relations, iv) administrative routines and services, v) legal ties and vi) financial conditions.

i) Technology

As illustrated in previous chapters, suppliers are important sources for the technology of VT. Suppliers are crucial for the product technology of VT since they are heavily involved in both design and manufacturing of critical parts of the total offering. Also when it comes to process technologies, suppliers play important roles. The modular approach applied at VT's assembly lines requires reliable just-in-time deliveries from the preferred suppliers. Moreover, the market technologies of VT to maintain the features of a premium brand build to a large extent on the quality of what is delivered from the suppliers.

The change in the purchasing strategy of VT was initiated partly because the company needed to exploit technology controlled by other firms. The fast technological development made it impossible for VT (and other firms) to rely entirely on its own resources. Increasingly it utilizes the technologies developed by specialized business partners. In this way VT is provided with access to broad areas of specialized technologies, which is favourable to the development of their offering.

Relying on the technology of others requires adaptations and the development of strong activity links, resource ties and actor bonds, through which competences and knowledge flow between the firms. At the same time, however, these relationships constrain the freedom of the business partners and make a company dependent on others. Potential modifications of the features of the offering of VT thus need to take into consideration how these changes would impact on the product and process technologies in relation to suppliers. Thus, irrespective of type of technology, connected technologies create interdependences. The consequences of these interdependences are important for firms and individuals to be aware of, because they must in some way be handled.

Concerning the 2005 episode, VT argues that technology interdependences were at hand in relation to many components and systems, for example the chassis. In this specific case, the technology developed by Gehab to attach the swap body to the truck chassis made VT dependent on Gehab's knowledge of how to accomplish this.

The adaptations undertaken impacted their relationship because much of the product-oriented interactions were linked to technological requirements. The technology interdependences made their relationship more formal owing to many written requirements, like the technical specifications. Interdependences related to technology impact not only on the direct business partners of a supplier. They spread also to the sub-suppliers in the network. This is in line with Håkansson and Snehota (1995:13) where it is claimed that *“technical development within one company and in its relationships is dependent on other companies' technologies; it is facilitated or constrained not only by those with whom the company maintains direct relationships but also by the technology of other third parties”*. These conditions explain the efforts of VT to stimulate cooperation not only with individual preferred suppliers, but also among those vendors.

ii) *Knowledge*

There is a direct connection between the way a company exploits technology and the body of knowledge residing in the firm. A company relying on internal technology holds its knowledge in-house, while a firm exploiting the technology of others complements its in-house knowledge with the knowledge of its suppliers. Obviously the latter firm will have access to a much larger knowledge body. The changes of the purchasing strategy of VT expanded the available knowledge body considerably. Rather than having to maintain the total knowledge body required for a truck offering, VT now can rely on the abilities and competences of specialized suppliers such as SSAB, ArvinMeritor, SadeF, the Bosch group and many others. Again it is possible to relate to Håkansson and Snehota (1995) in their claim that *“the know-how of the company reflects not only the knowledge of its personnel but also that of the other companies and organizations to which it is connected through business relationships”*.

On the other hand, these conditions impose strong interdependences in relation to the knowledge residing within the group of preferred suppliers. This means that problems will appear if the developments of the knowledge bodies in these firms take other directions than what is relevant for VT. Therefore, continuous evaluation of the relationships with these suppliers is of significant importance in order to handle interdependence.

In the same way as for technology, a major strategic issue is to decide what knowledge needs to be kept in-house and to what extent to rely on the knowledge of others. The conditions for this decision change over time owing to the expansion of the general knowledge base, the competences of available suppliers, and what is critical knowledge in relation to the offering of the company. For example, at the end of the 1990s, the Volvo Group stated that the knowledge and competence in cab and engine development and production was of strategic importance and therefore had to be secured in-house. However, later on the know-how linked to rear-axle development and production was no longer considered critical and consequently it was outsourced to external suppliers.

iii) *Social relations*

There is a tendency that a relationship develops to become social in its appearances. Håkansson and Snehota (1995) claim that business relationships are directed by people who have different social roles, which may result in relational interdependences. The social

relations between individuals may create individual bonds, which influence decisions and ways of working and acting. Even though there is a formal governance structure in firms, many decisions are influenced and affected by the ways in which the social relations between individuals are perceived. One example is that the individuals at a VT dealer have certain roles when interacting with customers and suppliers. Many individuals may find it easier to contact an individual that they already know, instead of a completely new person. So when this kind of relationship develops, the individuals tend to become closely connected also on a social level. For example, many of the relationships between individuals from different internal suppliers within the Volvo Group have developed to become social relations, since people work within the same organization.

Another aspect of social relations is that a unified business proposal from several individuals may have stronger influence on decisions compared to proposals from a single person. A unified approach may be perceived as the voice of the firm. Accordingly, it is valid also to be aware of in what way individual relationships, as well as groups of individuals, affect the firm level. Sometimes strong social interdependences between individuals are critical to the business operations of two companies. If these are broken for some reason, it is important to ensure that the business between the firms can continue.

For example, the relationship between VT and HÅ on the firm level was relatively intact despite the fact that important social relations were dissolved. The business exchange on firm level could continue without any major disruption.

iv) Administrative routines & services

Administrative routines and systems are in general implemented to increase coordination, control and follow-up. Furthermore, administrative routines and systems are closely integrated, which creates internal system dependence. Sometimes routines and systems are closely integrated with external firms. In this way information systems and other systems may create interdependences between buyer and supplier and other indirectly connected firms.

Regarding the suppliers in the 2005 episode, no integration of financial or information systems was made. However, the level of financial information shared with suppliers differed between external and internal vendors. As internal suppliers, Volvo 3P and Volvo Powertrain received continuous financial information regarding both their own situation and the Volvo

Group status and development. This provided the internal suppliers with a better situation regarding capacity planning and business understanding of VT's business status. The business information open for both external and internal suppliers concerned capacity conditions, and goods and service planning tools. This information was to some part integrated and adapted in relation to each supplier's specific needs and prerequisites. The information concerned the features and the amounts of components and systems required. Besides volumes and capacity planning, the requests for service and maintenance on the current truck fleet were planned in a continuous dialogue between the activated suppliers. Product and service data are also possible for third parties to reach through the transport information. The access to this kind of product and service data resulted in an increased awareness and knowledge about product offerings, systems and its contents.

v) *Legal ties*

A firm is embedded in a legal context. This context provides important conditions for the way firms can operate. Håkansson and Snehota (1995) claim that formal agreements of various types affect what is on-going in a relationship. For example, the Volvo 3P criteria when approving a preferred premium supplier need to be fulfilled by the supplier and signed. In this agreement a number of prerequisites and requirements are stated. In this way legal ties create interdependences between the parties. In-house suppliers operate with the same criteria, with the exception that they are legally part of the same group and governance structure as their customer VT. These internal organizations are stressed by the parent company to increase their cooperation, through fulfilling common group objectives. Legal ties affect the supplier relationships by prescribing special conditions to relate to. Gadde and Håkansson (1998) and Håkansson (1989) argue that sometimes informal agreements are more important than formal ones. However, every truck order needs to be signed before going into the production, as was the case when HÅ ordered the four trucks from VT in 2005. Thus, formal agreements are in general used when the customer and the supplier agrees upon an order. According to Thompson (1967) such agreements are means for interaction between firms by providing background and prerequisites for what to expect of the business relationship.

vi) *Financial conditions*

Firms have to manage to deliver and increase total long-term profit (Penrose 1959). The firms that are part of a supplier network are thus to a large extent driven by financial aspects. In order to deliver required profitability levels to their shareholders, they have to realign the

organization and their suppliers in a similar financial context. This perspective gives a background to the reorganization of the VT supplier network. Supplier negotiations and agreements with long-term business focus tend to strive towards establishing a win-win situation for the involved firms. For example, if a supplier is required to reduce the price on a component or system, the supplier needs in general to be compensated by larger volumes to maintain its revenues. Achieving economies of scale is the financial foundation behind the creation of tier-1 suppliers like SSAB. Accordingly, VT is able to offer larger volumes to a preferred supplier by following the single-sourcing strategy.

Prices and volumes are focal topics in most business relationships. A premium brand like Volvo has made it possible to position its product offerings at a high price level. Even though high-quality components and systems from suppliers and sub-suppliers lead to increasing cost, the profitability margin may be improved by the opportunity to charge a higher price. It is therefore important for the suppliers to align with VT's position statement. Living up to a premium brand position is an important criterion for the supplier to fulfil. VT argues that it is easier to adapt the organization to volume changes than to regain a lost image and price position. Consequently, for VT it is in the long term more important to be able to uphold the price level rather than keeping the sales volumes.

Chapter 8 has analyzed the combining of offerings with an emphasis on the role of business relationships. In Chapter 9 the main conclusions of the study are summarized.

9 Concluding Discussion

The aim of this thesis is to explore how manufacturers of industrial goods extend their offerings by combining the elements of the offering in accordance with customer requirements, through the active mobilization of the business partners on the supply side. In Chapter 2 three research issues were identified. The first, concerning the elements of the offering and their combining, is dealt with in Chapter 4 and further investigated in Chapter 8.1. The second research issue, dealing with a particular customized offering and the interaction with the buyer, is analyzed in Chapters 6, 7 and 8.2. Finally the third research issue concerning the activation and participation of the supplier network is dealt with in Chapters 5, 6 and 8.3.

In this final chapter we bring up four issues for discussion. First, some basic requirements concerning the provider of extended offerings are presented. The second section points out central aspects related to the interaction with the buyer of the offering. Third, the role of the provider as a coordinator of the supplier network in the creation an offering is discussed. Fourth, and finally, some general implications for the handling of the collaboration with business partners are brought forward. In all cases the conclusions of this study are related to findings from studies of other researchers.

9.1 *Providing extended offerings*

The main motif behind this study is the fact that

“in all sorts of industries companies that traditionally have made and sold stand-alone products are changing their strategies. They are creating high-value solutions by integrating various products and services”.

(Foote et al., 2001:84)

In several ways this transformation represents a huge challenge. As discussed in Chapter 8 the transition calls for new organizational principles, the establishment of a service infrastructure,

as well as modifications of current business processes and the relationships with business partners.

This finding is in line with Oliva and Kallenberg (2003) who claim that in situations when the attention shifts from product manufacturing to customer service provision, new capabilities, metrics and incentives are needed. One typical challenge for the provider is to move “*beyond the factory gate to tap into the valuable economic activity that occurs throughout the entire product life*” (Wise and Baumgartner, 1999:133). In turn, this transition requires a change from a product-centric approach towards a relational focus, which is always a most cumbersome process (Tuli et al., 2009).

Concerning internal organizational issues, Chapter 8 points out the relevance of a separation in terms of front-end and back-end units. However, it is crucial also to consider the need for integration between the various functions and departments in the provider company. In this particular respect Windahl and Lakemond (2006) stress the connections between technical R&D, service development and marketing. As shown in Chapter 5 the connections between these functions and purchasing are crucial in Volvo Trucks, since the purchasing unit is responsible for the interfaces with suppliers.

When it comes to the logic of combining the various elements of the offering, VT seems to follow the recommendations of Shankar et al. (2009) in their discussion of the development of ‘hybrid offerings’ (combinations of products and services). These authors discuss four rules that are important for successful development of extended offerings. The first rule in this process is to analyze the opportunities for differentiation. This potential is contingent on the level of commoditization in the industry and the complexity and variety of the problems of customers.

The second rule is to secure potential economies of scale by defining an adequate balance between standardization and customization. Customized offerings are always possible to create, the problem is that any individualization is costly. A balancing logic in this respect is formulated in the following way: “*standardization starts from inside customization starts from outside*” (Anderson and Narus, 1999:234). The implication of this statement is that at some point the advantages of customization are outweighed by the disadvantages associated with decreasing standardization and reduced economies of scale. These conditions make the

third rule highly significant: to carefully assess the revenue and profit potential of the various product-service combinations. Since customers make different interpretations of the value associated with these combinations, any assessment must be individualized and in these processes interaction with potential customers is important. Finally, the fourth rule is to invest in branding activities to support the extended offering.

This study shows that the provider is heavily dependent on input from both customer and supplier in the configuration of an offering. Therefore, across-firm organizational issues and *“factors related to interfirm relationships may be as important as intra-firm factors”* (Windahl and Lakemond, 2006:817). These conditions call for some comments regarding the relationships with these business partners.

9.2 Interaction with customers

Chapter 7 and the 2005 episode illustrated the significance of interaction with the buyer. The customer-provider dialogue in the five phases affected the features of the offering in a considerable way (Figure 9.1). During the sales and delivery processes the number of elements, as well as what kind of elements to include, changed.

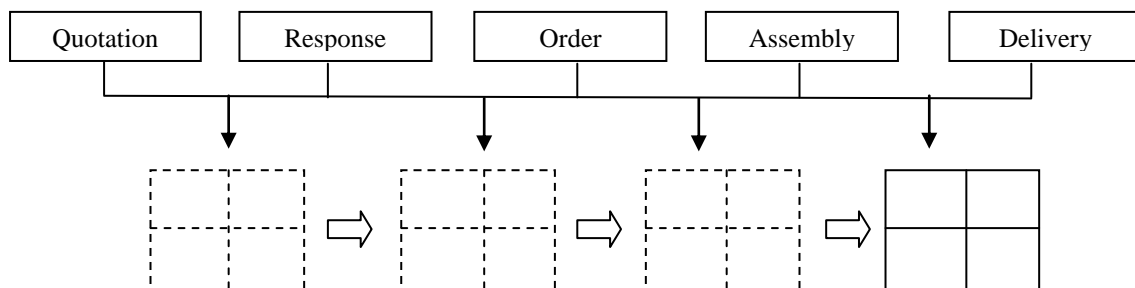


Figure 9.1: *The features of the offering evolve during the customer-supplier dialogue*

Some features of the offering were held open in the beginning to be decided later in the process. This concerned some equipment on two of the vehicles and the financing alternatives that were postponed until delivery. Other features were modified during the process, such as the equipment for lifting and regulation of temperature. In this way the realized offering is created in the interaction between customer and provider.

The interaction in the 2005 episode was affected by both the time and the space context. The previous interaction between VT and the customer was important for the outcome of the tendering procedure. The common knowledge in the two organizations concerning what the supplier was able to offer and what the buyer required, impacted on the features of the offering. In the space context the interaction with Gehab was significant since the buyer prescribed that this sub-supplier had to be used.

The findings concerning the crucial role of interaction are confirmed by Tuli et al. (2007), who identified four relational processes in the development and delivery of offerings. During these processes the customization of the offering involved “*designing, modifying, or selecting products to fit into the customer’s environment*” (Tulli et al., 2007:7). Such actions are required since “*customers frequently are not fully cognizant of their business needs and cannot easily articulate them to a supplier*” (ibid. p. 6). The four processes identified in their study were: (i) requirements definition, (ii) customization and integration, (iii) deployment and (iv) post-deployment support. The five phases in the provider-customer dialogue in Figure 9.1 corresponds to three first of these processes. The experience of the buyer during the coming contractual period represents the fourth process and will impact on the future business between the parties.

9.3 The provider of the offering as a network coordinator

It is claimed in the analytical framework that enhanced technological complexity and specialization of firms have made the provider of an extended offering increasingly dependent on the input from other firms. As shown in this study, these conditions are at hand in the case of VT. Increasing reliance on ‘buy’ rather than ‘make’ has made VT’s offering an outcome of the joint efforts of a huge cadre of suppliers. Some of these suppliers work in direct contact with VT, while others are indirectly connected by being sub-suppliers to the tier-1 suppliers. The individual efforts of these specialized suppliers have to be coordinated for the provision of the customized offering. The greater the specialisation, the more integration and coordination is required (Gadde et al., 2010). In this integrative process VT can be characterized as a ‘network coordinator’ (Figure 9.2).

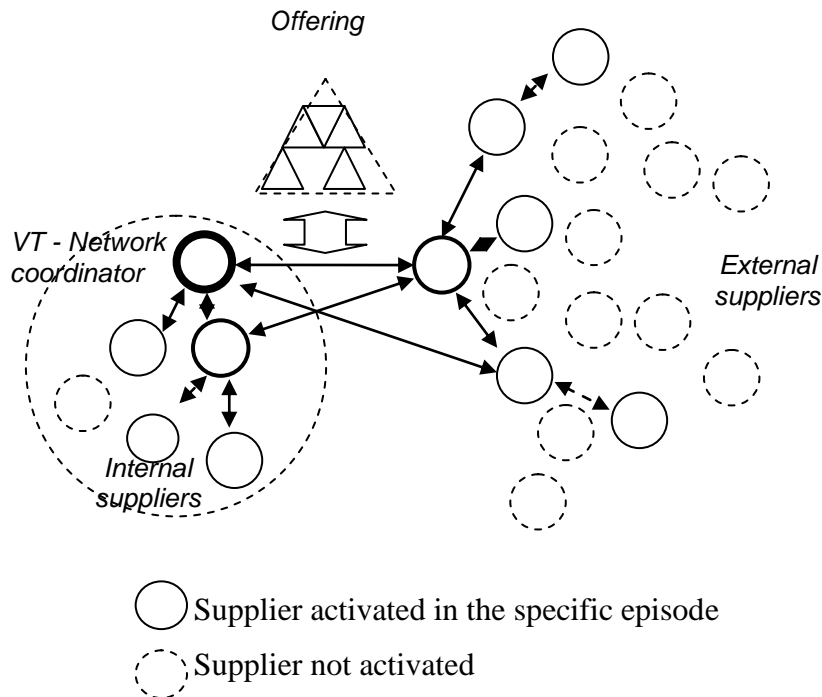


Figure 9.2: VT as coordinator of the joint efforts of external and internal suppliers

This finding is supported by Tuli et al. (2007) in their claim that the provider needs to coordinate the various business units involved in the relational processes affecting the customer. Similarly, Davies et al. (2007:187) discuss the demand for integration of components supplied by external firms and claim that someone “*has to assume responsibility for coordinating the components into a system*”.

The complexity of this task is illustrated by the fact that “*for many firms, the biggest challenge will be developing the capabilities to integrate different pieces of a system provided increasingly by an external network of specialized component suppliers, subcontractors and service providers*” (Davies, 2004:753). In order to handle these problems, the network coordinator in this study increased the involvement with the preferred suppliers and encouraged interaction among them, as shown in Chapter 5.

Sections 9.2 and 9.3 have pointed to the central role played by the interaction with customers and suppliers. These conditions call for some final remarks regarding collaboration with business partners.

9.4 Collaboration with business partners

This study shows the importance of the business partners in the efforts to provide customers with extended offerings. Also this finding is in line with previous research. Both customers and suppliers control resources that are significant for the provider's attempt to develop extended offerings of value to individual buyers. The provider's access to these resources does not appear automatically, but require close cooperation and a long-term orientation. Tuli et al. (2007) found that many suppliers underemphasize the need for relational processes, which may lead to major problems in the design and development of customized offerings. To avoid this trap they recommend actions in two respects. First, they highlight the benefits of 'customer interaction stability'. This stability refers to the length of the time during which central 'customer interactors' (sales people, key account managers, etc.) are assigned to a customer. Enhanced stability promotes close relationships and the development of social capital among people. Secondly, they suggest providers to "*develop and maintain strong relationships with multiple individuals in the customer firm*" (Tuli et al., 2007:14). This recommendation is illustrated in Figure 9.3

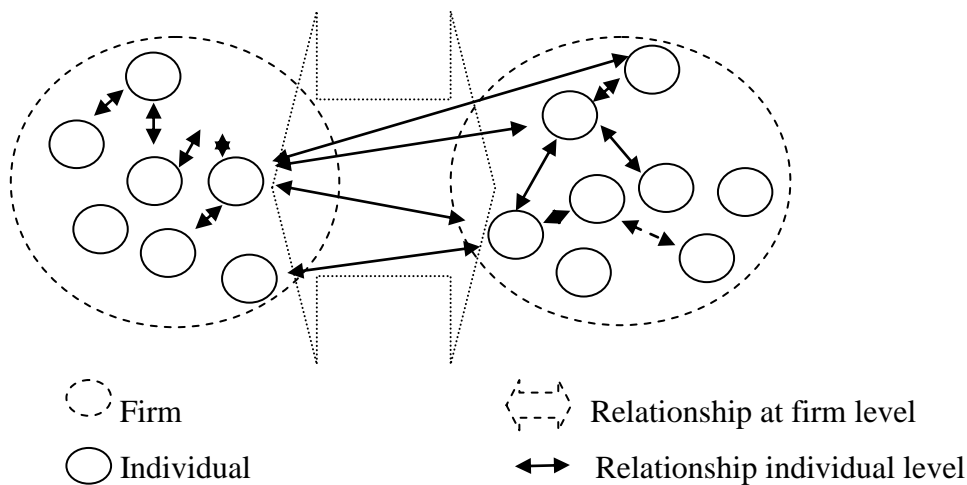


Figure 9.3: Multiple interaction in a business relationship

The benefits of multiple interactions are illustrated in the case study through VT's relationship with the buyer. Before the 2005 episode the relationship was characterized by interaction stability owing to the long-term interplay between HÅ's managing director and the sales manager of VT. However, when the managing director left HÅ the main 'interactor' on one of the sides of the relationship disappeared. Because relationships had been developed between

other individuals in the two firms, the 2005 episode functioned in a satisfactory way despite the absence of the previous main interactor.

To avoid potential relationship pitfalls when central interactors disappear, it is important that the connection between the firms is not dissolved. Therefore, the multiple interactions recommended by Davies et al. (2007) must involve interaction between individuals at various levels and departments and between several people at these departments simultaneously. Even if interaction always occurs between individuals, the outcomes of these processes tend to establish connections on other levels, for example between the business units and the company functions of the two firms. However, attempts to encourage enhanced interaction must consider that interaction is resource-demanding for both parties. Furthermore, there is a risk that multiple interactions may lead to inconsistent messages between the firms, thus creating uncertainties on the two sides (Gadde and Håkansson, 1998).

Finally, this research, and other studies, demonstrates the importance of the provider's relations to other firms in the efforts of designing and developing customized offerings. The relationships with these partners provide huge benefits. At the same time, however, they impose restrictions on what actually can be achieved. A network coordinator is dependent on the capabilities of its suppliers. This represents one of the network constraints for what offerings can be made available to prospective customers. The other constraint occurs since the provider simultaneously is involved in interaction with several potential buyers. What can be achieved in terms of customization in relation to one of these buyers is contingent on how the requirements of this firm fit with those of other customers. Too much divergence from the current balance between standardization and customization may be so costly for the provider that the resulting offering will not be perceived as a valuable solution by the customer.

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